

# DOCUMENT RESUME

ED 100 078

EC 070 552

**AUTHOR** Miller, Rozelle J.; And Others  
**TITLE** A Teachers' Guide for Exceptional Children and Youth. Parts 1 and 2.  
**INSTITUTION** Michigan Univ., Ann Arbor. Inst. for the Study of Mental Retardation.  
**SPONS AGENCY** Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Department of Defense, Washington, D.C.  
**PUB DATE** 73  
**GRANT** OEG-0-71-1672(603)  
**NOTE** 912p.; Most pages are horizontal each requiring 2 microfiche frames; For Parts 3 and 4 and the final project report see EC 070 553 and 554  
**EDRS PRICE** MF-\$1.50 HC-\$43.80 PLUS POSTAGE  
**DESCRIPTORS** Auditory Training; Behavioral Objectives; Body Image; Elementary Education; Exceptional Child Education; Handwriting; \*Learning Disabilities; Mathematics; \*Mentally Handicapped; Military Personnel; Motor Development; Reading; Sciences; Secondary Education; Spatial Relationship; Spelling; Task Analysis; \*Teaching Guides; Visual Perception  
**IDENTIFIERS** \*United States Dependent Schools European Area

## ABSTRACT

Presented are Parts 1 and 2 of a teaching guide designed for use in the United States Dependent Schools in the European Area. It provides a developmental, task analysis approach for teaching elementary and secondary level mentally retarded and learning disabled students. Included in Part 1 are steps for use of the guide, an explanation of task analysis, a curriculum guide for assessing and developing pre-academic skills (such as gross motor, visual motor, and auditory skills), an ability attainment form for recording a pupil's progress, and a selected annotated bibliography of 39 entries. Part 2 consists of curriculum guides in reading, handwriting and spelling, mathematics, and science. Each curriculum unit lists target abilities (presented in behavioral terms in developmental order), assessment items for each ability, content-development and reinforcement activities for many of the abilities, and supplemental teaching resources and strategies (which are cross referenced to Part 4 in another volume). (LS)

BEST COPY AVAILABLE

ED 100078

EC 070 552

TEACHERS' GUIDE FOR EXCEPTIONAL CHILDREN AND YOUTH

Prepared for use by teachers of exceptional  
children and youth in the United States  
Dependent Schools, European Area

by

Rozelle J. Miller, M.A.  
Training Program Associate in Special Education

John B. Junkala, Ed.D.  
Training Program Associate in Special Education

Ronald E. Nutter, M.A.  
Training Program Associate in Special Education

Lynn F. Ellis, M.A.  
Research Assistant

Institute for the Study of Mental Retardation and Related Disabilities  
The University of Michigan  
Ann Arbor, Michigan

1973

U.S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTES OF  
HEALTH  
EDUCATION

The project presented herein was performed pursuant to Grant No. OEG-0-71-6172 (6C3) from the Bureau for the Education of the Handicapped, U.S. Office of Education, Department of Health, Education and Welfare, and by a grant to the BEH, USHEW for the University of Michigan from the U.S. Department of Defense. However, the opinions expressed herein do not necessarily reflect the position of the U.S. Office of Education nor the U.S. Department of Defense, and no official endorsement by either should be inferred except as may be directly expressed by their appropriate representatives.

DIRECTORATE  
UNITED STATES DEPENDENTS SCHOOLS  
EUROPEAN AREA  
APO 09164

P A M P H L E T  
No. 352-623

1 May 1973

DEPENDENTS' EDUCATION

TEACHERS' CURRICULUM GUIDE FOR EXCEPTIONAL CHILDREN

This Guide contains curriculum objectives and suggested teaching activities for the USDESEA Special Education program and is published for information and guidance of Special Education personnel and supporting staff. Principals will insure accountability at the end of the school year of all copies of this pamphlet received in their schools.

FOR THE DIRECTOR:

RICHARD H. COSS  
Deputy Director

OFFICIAL:



SAMUEL J. MICELI  
Administrative Officer

DISTRIBUTION: B plus  
1 per Special Education Teacher



## PREFACE

One might appropriately ask, "Why another teachers' guide? Aren't there enough already in print?" Indeed, the authors examined over 100 such guides from large and small school systems and from state and county administrative units. Initially, the authors assumed that a guide for teachers of exceptional children and youth in the United States Dependent Schools, European Area might be developed by synthesizing the best from current guides.

Careful examination of current curricula, however, suggested that they are basically a reflection of each other--a situation in which one school system has used the ideas of others, causing a maintenance of a status quo in special education. Such curricula are infrequently modeled according to a grade structure typical of the regular elementary and secondary school programs. References to achievement levels, grade placement, and level of expectancy appropriate to normal children are observed time after time in guides used in many special education systems throughout the United States. For example, using standard reading series and arithmetic series intended for normal children of a given chronological age level or grade placement is recommended for use with students of much older chronological age levels who are assumed to be of comparable mental age levels. This does not appear to be an appropriate recommendation as the basis for the learning programs of students in special education.

To overcome such deficits in existing curricula, the authors of this teachers' guide have developed an approach which they feel is more appropriate to the needs of exceptional students and their teachers. Basically, it is a developmental approach, rooted in recognized concepts of developmental psychology, post-natal physiology, and developmental education; it incorporates and emphasizes the developmental stages and needs of growing children and youth. Arbitrary grade placements and grading concepts have been subsumed or ignored, where appropriate.

Not only is it logical to create a teachers' guide based on the developmental needs of exceptional children and youth, but it is essential that this be done in the unique school system represented in a USDESEA. Pupils are admitted into this school system from hundreds of school systems in the United States. They come from an extraordinarily wide diversity of educational backgrounds and educational systems. To develop a guide which would incorporate current programs in use in these many school systems would be impossible. At the same time the length of stay in the USDESEA system is relatively short. It is therefore appropriate that the educational experience which the students receive in the special education program while in Europe reflect their developmental needs and prepare them to resume their education in the United States.

The education of exceptional children and youth, as expressed in this guide, requires two major activities of teachers. First, the teacher must determine the developmental level a student has achieved--the level where success experiences can be assured. Education is effective only when it begins from a base of success. At times this has been stated in a slightly different way; namely, it is necessary to find the most primitive base on which a success experience can be mounted and from that point to move developmentally with the student.

Secondly, every activity which is presented to the student from this point of view must be submitted to the concept of task analysis. This approach is expanded more fully in subsequent pages of this guide. It is, however, an essential step in the effective use of this guide and teachers must become proficient in its use. If the concept of task analysis is thoroughly understood and adequately implemented, the educator will quickly see that the contents of this guide are appropriate and applicable to all types of exceptional students and to normal students as well.

This guide does not present a program which is fully complete in every detail. The developmental educational structure is here; teachers can creatively improvise with it and adapt it to their particular teaching situation. Certain fundamental concepts have been pursued in great depths to serve as examples of the approach which must be taken in all areas of the students' education. Those who contributed to the development of this guide felt that creative teachers provided with guideposts would prefer to employ their own initiative and ingenuity in executing many of the aspects of the curriculum. Part IV of this guide contains detailed references to other sources and to teaching materials which can be effective not only in expanding the material here, but in assisting teachers in developing their own learning experiences for students. The teacher who becomes familiar with the concept of task analysis and who follows carefully the suggested activities provided in many parts of the guide will quickly discover that a stimulating educational experience based on developmental needs of the student can be accomplished very effectively.

Institute for the Study of Mental  
Retardation and Related Disabilities  
University of Michigan  
Ann Arbor, Michigan  
June, 1973

William M. Cruickshank, Ph.D.  
Project Director

#### ACKNOWLEDGMENTS

The preparation of this guide has been the work of a few people. The possibility of accomplishing it, however, within the time frame which was permitted was due to the direct and indirect assistance of many persons.

The specific responsibility for the development of the guide was that of Mrs. Rozelle J. Miller, a special educator of excellent reputation who was granted a leave of absence for two years from her leadership position in the Maryland State Department of Education. As a Training Program Associate in Special Education during this period in the Institute for the Study of Mental Retardation and Related Disabilities, The University of Michigan, she worked both in the European Area and in the Institute office to bring the guide to a high level of professional excellence.

Mrs. Miller was closely assisted in major portions of this work by Mr. Ronald E. Nutter, formerly of the Macomb County (Michigan) Intermediate School District, who also functioned during the life of the project as a Training Program Associate in Special Education with the Institute. Mr. Lynn F. Ellis, as Research Assistant with the project during its entire duration, performed a vital role in many capacities.

Others directly related to the project for shorter periods of time included Miss Barbara Sinell, Program Associate, and Dr. Marjorie Barnes, Consultant, who was exceedingly helpful in the preparation of portions of the mathematics and science areas.

Individuals in The University of Michigan and public school communities served from time to time as consultants to the project. These included Dr. Robert Elliott, Ann Arbor Public Schools, who advised the curriculum staff on aspects of the mathematics program. Mrs. Martha Hoersch, Program Director for Occupational Therapy in the Institute and a faculty member in occupational therapy at both The University of Michigan and Eastern Michigan University, was particularly helpful with respect to early childhood materials and concepts. Mr. Lee Martin, formerly Director of Special Education, Inkster (Michigan) Public Schools, assisted the staff with science programs.

Twenty students in special education and nutrition from The University of Michigan and Eastern Michigan University were helpful in working on specific projects connected with the development of the guide.

Mrs. Evelyn Marshall, Field Consultant, Teaching Resources Corporation, served as a consultant to staff on aspects of the mathematics program.

Representing the Institute in the European Area during the two-year period of preparation of the guide was Dr. John Junkala on leave of absence from his position as Associate Professor at Boston College. Specifically of significance was his work with teachers in service in the European Area in field testing guide materials, in developing subunits, and in the organization of two workshops in 1972 and in 1973 for personnel of the United States Dependent Schools, European Area.

Personnel participating in the 1972 workshop, operated under the aegis of the University of Oregon with Institute personnel serving as faculty members, performed a particularly helpful service in providing an intensive critique of materials which had been prepared. Included in this workshop were the following USDESEA school personnel:

Linda Bufkin, Nurnberg Elementary	Margaret Ingalls, Augsburg Elementary
Pamela Ciarione, Lakenheath Elementary	Deanna Kellogg, Torrejon Elementary
Victoria deDeugd, Uden American School	Leah Mack, Assistant Principal, Bitburg Elementary
Patricia Deverman, Ramstein Elementary	JoAnn Matsumura, Frankfurt Elementary
Larry DuMaurier, Wiesbaden High School	Sheila Maudsley, Baumholder Elementary
Adrian Fahey, Baumholder Elementary	Leona Montrouil, Rhein Main Elementary
Judy Fontanella, Landstuhl Elementary	Jeanne Mullane, Lakenheath Elementary
Richard Garcia, Heidelberg Elementary	Leona Odegard, Berlin American High School
Rachel Gribble, Heidelberg Elementary	Jack Palmer, Deputy Principal, Royal Oaks School
Judy Gwinnup, Bad Nauheim Elementary	Angelo Provenzo, Frankfurt Junior High School
Carolyn Haberer, Mannheim Elementary	Linda Renz, Hanau Elementary
Eileen Hanratty, Ansbach Elementary	Marlene Sackel, Bitburg Elementary
Susan Hayes, Torrejon Elementary	Franklyn Smouse, Supervising Principal, Hahn Elementary-Junior High School

Jane Sprinkel, Heidelberg Elementary

Lillian Sust, Ludwigsburg Elementary

Acknowledgment must also enthusiastically be made to two USDESEA Directorate personnel, who over a three-year period assumed leadership roles in bringing the United States Department of Defense and the Bureau for the Education of the Handicapped, United States Office of Education, HEW, into juxtaposition with one another for joint funding of the project. Dr. Joseph A. Mason, Director, and Dr. William Bastendorf, Associate Director for Pupils Personnel Services and Special Education, USDESEA, were of particular significance. The project could not have been developed if Dr. Bastendorf had not given it his personal attention for many months. To these and many of their colleagues, the Project Staff is happy to extend much recognition and appreciation. Many other USDESEA personnel provided much consultation time particularly in the pre-planning and early stages of the work.

Personnel of the Institute for the Study of Mental Retardation and Related Disabilities of The University of Michigan likewise responded to many requests over a two-year period in providing materials and consultation to those directly responsible for writing.

William M. Cruickshank, Ph.D.  
Project Director

TABLE OF CONTENTS

<u>Part I</u>	<u>Page</u>
Foreword	
Preface . . . . .	I
Acknowledgments . . . . .	III
Introduction to the Organization and Use of the Guide . . . . .	I
Steps for Using the Guide . . . . .	7
Task Analysis . . . . .	8
Pre-Academic Skills	
Introduction . . . . .	23
Abilities and Assessments . . . . .	24
Suggested Teaching Activities . . . . .	44
Language Development	
Introduction . . . . .	87
Abilities and Assessments . . . . .	88
Suggested Teaching Activities . . . . .	92
Ability Attainment Form . . . . .	102
Selected Annotated Bibliography . . . . .	109

Part II

Page

Reading

Introduction . . . . .	R 1*
Abilities and Assessments . . . . .	R 5
Suggested Teaching Activities . . . . .	R 19

Handwriting and Spelling

Introduction . . . . .	H/S 1
Abilities and Assessments . . . . .	H/S 5
Suggested Teaching Activities . . . . .	H/S 12

Mathematics

Introduction . . . . .	M 1
Abilities and Assessments . . . . .	M 3
Suggested Teaching Activities . . . . .	M 57

Science

Introduction . . . . .	S 1
Abilities and Assessments . . . . .	S 3
Suggested Teaching Activities . . . . .	S 47

\*The letter preceding the numeral is an abbreviation for the name of the section, e.g., "R" for Reading, "U" for Experience Units, etc.

<u>Part III</u>	<u>Page</u>
Personal-Social Development	
Introduction . . . . .	P 1
Abilities and Assessments . . . . .	P 3
Suggested Teaching Activities . . . . .	P 16
The Experience Unit	
Introduction . . . . .	U 1
Developmental Steps for Writing Experience Units . . . . .	U 2
Units	
Ways We Move . . . . .	U 16
Safety . . . . .	U 33
Orientation to the World of Work . . . . .	U 44
Sub-Units--Lessons	
Cooking . . . . .	U 54
Pets . . . . .	U 66
Living in Our American Village . . . . .	U 73
Use and Abuse of Drugs . . . . .	U 82



The World of Work		Page
Introduction . . . . .		W 1
"A Curriculum Model for Senior High School Special Education Programs" by Mahlon E. Porter . . . . .		W 3
Abilities and Assessments . . . . .		W 15
Suggested Teaching Activities . . . . .		W 43
APPENDIX A: Job Training Centers and Areas of Skill Training . . . . .		W 120
APPENDIX B: Sample Forms . . . . .		W 125
References . . . . .		W 137
 <u>Part IV</u>		
Introduction . . . . .		1
Teaching Resources		
Reading . . . . .		3
Handwriting and Spelling . . . . .		11
Mathematics . . . . .		13
Science . . . . .		16
Personal-Social Development . . . . .		22
O-rientation to the World of Work . . . . .		26

Teaching Strategies	Page
How to Utilize Instructional Materials and Equipment . . . . .	29
Teacher Aides . . . . .	31
Developing Experience Charts . . . . .	40
Learning Centers . . . . .	46
Educational Games . . . . .	63
Role-Playing . . . . .	80
Simulations . . . . .	87
Modifying Behavior . . . . .	98

## INTRODUCTION TO ORGANIZATION AND USE OF THE GUIDE

### Background

This Teachers' Guide for Exceptional Children and Youth was developed over a two-year period with continual input, reaction and feedback between the Institute for the Study of Mental Retardation and Related Disabilities (ISMRRD), University of Michigan, and the United States Dependent Schools in the European Area (USDESEA). The USDESEA Directorate and District staff provided professional consultation in curriculum and pupil personnel services and also provided logistical support to all phases of the project.

Special education programs in Germany, England, and Spain were actively involved in the development of this guide during each of the two years, and all of the special education programs in the European area were represented in the two-week workshops conducted during the summers of 1972 and 1973.

The long-range goals of this guide, based on a developmental sequence, are clearly stipulated in USDESEA's philosophy of education which reads in part:

"We believe that all children are entitled to an educational program that stresses the dignity and worth of the individual, that accepts each child on his own level of intellectual, physical, social, and emotional development, and provides for the realization of the unique potential within each child. We further believe that the development of concerned and responsible citizens proceeds from this emphasis on the fullest development of the individual--one who respects his American heritage and is aware of the challenge to reshape it to meet future needs.

We believe that children of varying abilities can experience a delight in learning for its own sake, as well as for the realization of vocational goals."

--The Administrator's Guide, USDESEA, Pamphlet No. 352-5

(Introduction to organization and use)

NOTES

Organization of the Guide

The guide is divided into four parts:

Part I

Acknowledgments

Preface

Introduction to the Organization and Use of the Guide

Steps for Use of the Guide

Task Analysis

Pre-Academic Skills

Ability Attainment Form

Selected Annotated Bibliography

Part II

Reading

Handwriting and Spelling

Mathematics

Science

(Introduction to organization and use)Part III

Personal-Social Development

Experience Units

World of Work

Part IV

Teaching Resources

Teaching Strategies

Instructional Design

The following instructional design is followed in all parts of the guide, with the exception of the Experience Unit section in which learning experiences are organized around central themes.

Abilities and Assessments

The ability statements follow a developmental sequence in each performance area.

Arranged in this order, each skill becomes a part of a subset of skills needed to master a skill at a higher level. When each ability is introduced, it is useful to assess each student to determine his present performance level.

After each ability statement in the Abilities and Assessments subsections and in the Suggested Teaching Activities is an assessment activity; this should determine whether the student can perform a specific skill under a given set of conditions. The abilities and assessments are developed in a step-by-step progression from very fundamental skills to more complex skills. The assessment activity enables the teacher to make better decisions in grouping students as well as in individual teaching. If the student can successfully perform the task, he can proceed to the next skill(s) in the sequence. If he cannot perform the task, the teacher plans classroom activities directed toward skill attainment through content-development and task analysis. Following the content-development and/or reinforcement activities, the assessment activity is repeated.

Suggested activities are indicated by page numbers in the first column on the right side of the page under Teacher Tips.

### Content-Development

Many of the ability and assessment statements are cross-referenced, by page number, to Suggested Activities. These content-development activities represent a breakdown of the abilities and illustrate how an ability may be taught by presenting its parts in a series of smaller steps. In the activities there are two categories of teacher action; what she does is indicated by lower-case letters, and what she says is indicated by upper-case letters. Directions given by the teacher are intended to be clear, concise, and stated in simple, student-related vocabulary. Time allotments for each set of activities are purposely not indicated. Teachers can make decisions about the best pace of instruction to use with individuals and/or groups of students. Some students may be able to master a skill in one period of instruction, while others may need several periods.

It is important that the activities used to teach any ability progress from the concrete, simple dimensions of the ability to the abstract or complex dimensions of the ability. A careful examination of each small step involved in the attainment of the skill is the only way to determine the appropriate activity sequence for each student. Once that is done, content-development activities can be developed. The examples presented in the content are illustrative of some of the activities which may be used. It is assumed that the teacher will modify and/or develop additional activities based upon individual and group differences of the students.

It is suggested that the teacher examine some of the suggested activities in several of the sections to become familiar with the format before beginning the development of content activities for the abilities and assessments.

### Reinforcement Activities

Following the content-development activities is a list of one or more reinforcement activities. These are intended as ideas or suggestions for reviewing the skill after it has been attained or as additional practice for the student who has essentially attained the ability but does not exhibit the desired behavior every time.

(Introduction to organization and use)

## NOTES

Task Analysis\*

Task analysis can aid the teacher to determine how the student learns best and to develop content activities based upon the demands of the task. If the student fails to attain a skill through the usual sequence of activities, the teacher may use task analysis techniques to determine the extent to which the student's information-processing deficiencies may be interacting with the cognitive dimensions of the task. Once the teacher becomes proficient in using task analysis techniques, they may be applied as each content activity is developed.

It is suggested that the teacher proceed by the following steps in learning to use these techniques:

- (1) Read the Task Analysis paper.
- (2) Scan sections of the guide to locate assessment or content-development activities that contain task analysis.
- (3) Study the process (input, output), cognition (perceptual, coding, or conceptual) dimensions, and the memory levels (awareness, recognition, and recall). If you have difficulty in understanding the analysis, reread the paper on Task Analysis.
- (4) Repeat step (2) above, but this time cover the analysis and practice doing your own analysis of each activity. Check your analysis with the printed one.
- (5) Construct your own activities and analyze them.
- (6) Continue to study and practice analyzing the task demands made upon each of your students.

\*Refer to Task Analysis, page 8.

---

(Introduction to organization and use)

---

NOTES

---

Teacher Tips: Teaching Resources and Teaching Strategies

References to Teacher Tips, Part IV, are indicated by page numbers, item numbers, and letters under the two columns on the right side of each ability and assessment and suggested activities page. The columns are titled Teaching Resources and Teaching Strategies. The teaching resources include supplementary materials and supplies that are available to the teacher. The teaching strategies provide the teacher with additional techniques and methods such as role-playing, educational games, and simulations.

Skill Attainment Form

Duplicate a copy of the Ability Attainment Form, Part I, page 102, for each student in your class. This form provides a record of the student's progress in each ability level and will be useful in planning individual and group activities. It will provide a basis for writing progress reports.



STEPS FOR USING THE GUIDE

To use the guide:

Step 1--Read the Preface, Part I.

Step 2--Scan the Table of Contents, Part I.

Step 3--Examine each section of the guide, Parts I-IV.

Step 4--Estimate the approximate ability levels of your students. Find the ability and assessment statements in each section of the guide which may apply to your students. Assess each student to determine his ability level in each core area.

Step 5--Duplicate the Ability Attainment Form, Part I, for each student. Circle the ability he has attained and write the date of attainment.

Step 6--Group students with similar ability levels (attainments).

Step 7--Write content-development and reinforcement activities, using the Suggested Teaching Activities as a guide only. Select appropriate resources and teaching strategies, Part IV.

Step 8--Apply task analysis when students are having difficulty.

Step 9--Use the information from the Ability Attainment Form as a basis for student progress reports.

TASK ANALYSIS\*

The abilities in the guide's developmental sequences are stated in behavioral terms to help the teacher to know what to look for in a successful pupil performance. Knowing how to apply task analysis provides further help because it identifies the demands that a task will make on a child, and thus helps the teacher to prepare the child to meet each demand.

Most educators acknowledge the readiness imperative, but many view it as only a phase that occurs before the introduction of formal instruction. Dolores Durkin points out that the question, "Is the child ready?" is really incomplete.\*\* To make it complete one must add, "Ready for what?" Readiness is a state of preparedness for what is to come next. Ideally, in an instructional situation, the child begins with all the skills and concepts needed before the next small step is introduced. Readiness is really a continuous process, and conclusions about readiness can only be made in the context of the tasks contained in a specific activity. To know whether a child is ready, the teacher must be aware of what the child will have to be able to do.

One need not spend much time visiting special education programs before hearing such phrases as "to individualize instruction" or "to take him from where he is. . ." "Where he is" usually means grade level (he is reading at a 2.3 level). Such a statement is rarely helpful in planning for a child who has a learning problem. These children often have so many gaps in their skills that a grade-level statement, even though yielded by a standard test, is almost totally useless for detailed educational planning.

Typically, these children do not make steady progress through standard teaching materials. When progress stops, the search for instructional alternatives begins. The search often consists of looking for the "right" materials. If a "look-say" approach to reading is in use, the teacher might switch to a phonics or a linguistic approach, or perhaps to elements of all three approaches.

\*This material is published by permission of John Junkala and Academic Therapy Publications.

\*\*Dolores Durkin. "What Does Research Say about the Time to Begin Reading Instruction?" Journal of Educational Research, 64 (1970), 52-56.

## (Task analysis)

## NOTES

Educators often describe themselves as eclectics, subscribing to no single teaching approach, but borrowing from all. "We use what works." Unfortunately, for too many children nothing seems to work.

Frustrated in their search for effective methods and materials, many teachers gradually lower their goals. Convinced that poor memory and short attention span are insurmountable problems, teachers find themselves espousing the affective aspects of their curricula and de-emphasizing cognitive-academic components, when healthy social-emotional development actually flows in large part from the acquisition of basic academic skills.

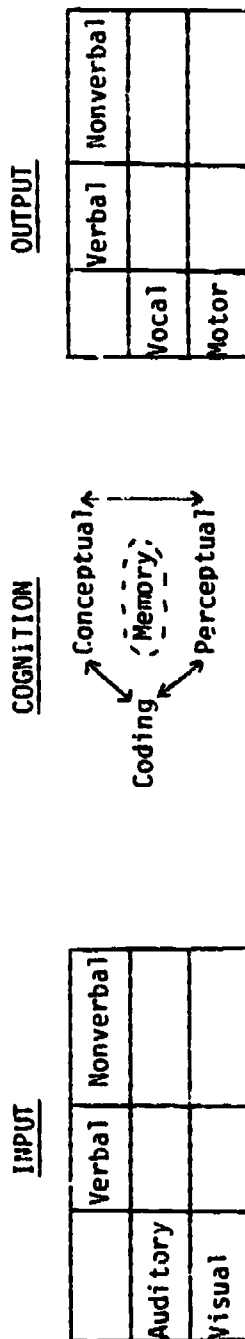
Methods and materials are often used as general treatments. They are used as prepared by the publisher, with perhaps some modification of pacing. When they work, all is well; but all too frequently they do not work, and are discarded as just a few more futile experiences in the search for the right materials. Seldom do teachers attempt to look closely at the methods and materials they intend to use with a pupil in a given situation. Seldom do they attempt to get inside the tasks they are presenting.

With only a general awareness of the demands of a task (for example, "to utilize his listening skills"), the teacher is able to conduct only a general search for instructional alternatives. With more precise knowledge of a task's demands, the search for alternatives can become more precise.

Task analysis exists in three dimensions: process demands, cognitive demands, and affective demands. This paper will limit itself to the first two. Processing means how the student is supposed to receive information in a task (input), and how he is to transmit information in the form of his response to a task (output). Cognition refers to the internal mediation to be performed by the student between the time he receives the input and generates the output. The following figure illustrates the relationship between these two dimensions.

(Task analysis)

NOTE:



THE PROCESSING DIMENSION

INPUT is described in terms of the sensory modalities that must receive and organize the stimuli from the directions and materials, and in terms of the verbal or nonverbal nature of the various incoming stimulus sets. In general, it can be described within the following matrix.

	Verbal	Nonverbal
Auditory		
Visual		
Tactual		
Kinesthetic		

Once in a while a task has an olfactory or gustatory input component, although they are not listed on the left side of the matrix. It can be assumed they are there, if needed. The rows of the matrix describe the incoming sensory pathways for the content of the task. The two columns simply allow us to indicate whether--and what parts of--the incoming information do or do not contain letters or words.

There is almost always an auditory, verbal component to every task (pantomiming is a notable exception). To avoid getting bogged down by this fact when looking at the input demands of a task, an analysis can begin at the point where the child understands what it is he is supposed to do. For example, in a visual discrimination task where the child is given a line of geometric shapes on a paper with the instructions, "See this one? Now, look over here and find one just like

## (Task analysis)

## NOTES

it and make a line under it," the input would be described as visual, nonverbal. Obviously, the teacher's directions were auditory, verbal, but this factor would be ignored in the initial analysis to concentrate on the actual content of the activity.

Let's take another task. The teacher presents a row of pictures and says, "When I say the name of a letter, I want you to point to a picture of something that begins with that letter." These instructions would not be included in the analysis of the input, but it would begin when she actually presents the task itself, i.e., she says "b," and the child points to a bird. The input analysis in this instance would be auditory, verbal (for the "b") and visual, nonverbal (for the picture of the bird).

The obvious question is, how can the teacher justify ignoring her initial directions to the student? What if the student has an auditory handicap? The reasoning is, if he has a severe auditory handicap it will affect his functioning in almost every task. If the problem is subtle, then he will succeed in some and fail in others. Whether the problem is severe or subtle, gross statements about auditory handicaps are not very useful for educational planning. Teachers must learn about the types of auditory components that give him the most trouble. This method provides a way of checking this. After giving him an array of tasks, the teacher can take a close look at the ones he failed and look for commonalities among their input components. They would all have in common the teacher's auditory, verbal directions, so that would be of no help. If the input content of the failed tasks included auditory, verbal material, then that would be another matter: at the very least it would generate a quickly testable hunch about a possible source of his difficulties.

This hunch could lead in two possible directions. The teacher could try to get some formal appraisal of his auditory capabilities, or--and this is the better direction--the teacher could restructure the failed tasks by eliminating or reducing the auditory, verbal input components to see how well the student could do without these demands being made upon him. For example, if one of the original tasks had involved the teacher dictating some arithmetic problems to the student, the second time around the student could be given the problems already printed on a piece of paper. If this approach worked, the teacher might decide, during future dictation activities, to give another student an extra piece of paper and a sheet of carbon paper to make a quick copy for the student who has the problem.

(Task analysis)

NOTES

In connection with this strategy, the teacher might often wonder whether it is preferable to bypass the handicap as just illustrated, or to attempt to remediate it. This question can only be answered within the context of each student, where there is good information both about his capabilities and about the resources of the school system. The task analysis technique being described here will help the teacher to assemble such information so that she will be in a better position to make her decisions.

The OUTPUT demands of a task can be described within the following matrix.

	Verbal	Nonverbal
Vocal		
Motor		

Here are some examples of the input-output dimension of task analysis.

(1) The teacher tells the student to copy the new spelling words from the board.

Input: Visual, verbal (the words the student sees on the board)

Output: Motor, verbal (writing the words)

(2) The teacher gives the student a paper-and-pencil spelling test.

Input: Auditory, verbal (the words the student must hear)

Output: Motor, verbal (writing the words)

(3) The teacher gives the student an oral spelling test.

Input: Auditory, verbal (the words he must hear)

Output: Vocal, verbal (spelling the words aloud)

(Task analysis)

NOTES

- (4) The teacher says a spelling word, presents the student with three different printed words, and tells the student to point to the correctly spelled word.

Input: Auditory, verbal (the words he hears)  
Visual, verbal (the words he sees)

Output: Motor, nonverbal (pointing to a word)

- (5) The teacher puts the new spelling words on the board, beside a story, and tells the student to find each of them in the story and underline it.

Input: Visual, verbal (the words and story he must see)

Output: Motor, nonverbal (drawing a line)

As can be seen, input and output are described in concrete terms, in reference to what the student must see and hear (input), and the observable response he is required to generate (output). Here is another set of examples to emphasize this point.

- (6) The teacher gives the student cards of different colors and tells him to sort them into different piles according to their color.

Input: Visual, nonverbal (the colored cards)

Output: Motor, nonverbal (putting them in piles)

- (7) The teacher gives the student cards with the names of foods, furniture, and tools on them, and tells him to sort them into different piles according to those classifications.

Input: Visual, verbal (the words on the cards)

Output: Motor, nonverbal (putting them in piles)



## (Task analysis)

## NOTES

On the visual discrimination task described earlier, where the child had to find and mark a geometric form like the one the teacher pointed to, the output would be described as motor, nonverbal. At the same time that one looks at the input components of the tasks failed by the student, one would also look at the output components or trends. It is quite possible that the student is getting the input in fine shape and that his problem occurs after he understands the incoming information. An easy example of this is the child who can't say that Frankfurt is at approximately 50 degrees north latitude, but can point to it on the map and indicate the appropriate parallel, or can write the appropriate answer. His problem is probably one of ideating the motor plan needed to say what he wants to say.

For another example, let's go back to the student who had trouble with tasks involving dictation. It is altogether possible that the information is coming in all right and is understood, and that the problem is one of revisualizing the words as they should appear on paper. This is an output problem. The teacher who is aware of this would then give him as many visual clues as possible. If the student is in a primary grade, for instance, perhaps a list of the most commonly used words could be taped to a corner of his desk; at a more primitive level he might benefit from visual closure tasks, where he is given almost but not quite all of the visual information, and is required to tell what the object is.

Older students with this problem benefit from multiple-answer tests, where they have a chance to recognize the right answer, rather than being forced to revisualize it from scratch. The classroom teacher might plan a series of lessons for this student that would lead from recognition to revisualization, by gradually decreasing the visual clues present in the material. Remember now, this student as he has been described does not have a visual perception (input) problem. He has a retrieval (output) problem. He should be encouraged to practice visual closure just as you are doing when you read this page. The chances are that you didn't spend much time on the second syllable of the word "doing" in the preceding sentence. You got enough from the "do-" so that you could pretty well predict what the rest of the word would be. You were able to quickly revisualize the word, working from the partial information provided by its first syllable.

The teacher can see and describe input; she can see and describe output; she cannot see cognition. That is an internal process. It must be inferred by looking at input and output over a wide range of tasks. That is why the teacher must be able to describe very accurately what the student is told to do, what she gives him to do, and what he actually does.



## (Task analysis)

## NOTES

As stated, the analysis of a task begins at the point where the teacher has finished giving her initial directions and is now presenting the actual input content. This does not mean that her initial directions are ignored. They require close attention to see if she can subsequently relate what the students actually do to what she told them to do. A teacher recently presented a language lesson to four third-grade children. Her directions were something like, "I'm going to say some words. Each time you hear the name of a vegetable I want you to raise your hands." The analysis of such a task is fairly straightforward--Input: auditory, verbal (the words they must hear); Output: motor, nonverbal (raising their hands).

She went through her list of words and seemed pleased that the students raised their hands at the right times. What she didn't seem to be aware of was that they never raised their hands simultaneously, but did so in a staggered order. It is quite possible that three of them were taking their cues from the fourth. The teacher assumed that the task's input was auditory, verbal, but for three of the students it could easily have been visual, nonverbal (seeing the fourth student raise his hand). How easy it would have been to seat them with their backs to each other for that particular lesson!

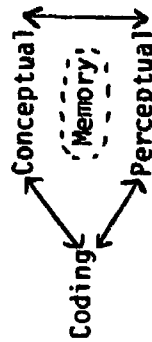
THE COGNITIVE DIMENSION

This section will describe cognitive demands, although, as will be seen, it is impossible to discuss them in pure forms, as they are so intricately interwoven with processing demands.

Cognitive Model

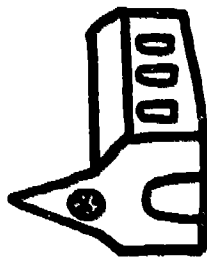
The following figure is a schematic representation of the relationship between the perceptual, coding, and conceptual demands of the cognitive dimension. Adequate coding presumes adequate perceptual functioning. Conceptual functioning subsumes both coding and perceptual functioning, although not every conceptual task need include a coding component.

Schematic Representation of Cognitive Dimension:



Perceptual Level

Perception means selecting stimuli from the array of those that are impinging upon us, and then integrating and structuring them so that children can identify them accurately. Identification implies that children are aware of functions, characteristics, or meanings of the stimuli that are structured. Identifying this picture as a church is an example of functioning at the perceptual level.



Identifying "b" as the letter "b" is a perceptual event. Pointing to a box on a table full of objects after hearing the word "box" is a perceptual event.

The look-say (or sight) approach to reading is largely perceptual in its demands, at least in its early phases. Children learn to read whole words by their total configurational patterns. The word "said," for example, is just that--nothing more, nothing less. It is not a collection of sound symbols that equals the word. It is just "said."

Coding Level

However, as soon as the child looks at "b" and says "buh," or "b as in baby," or as soon as he hears "book," and is required to know that it begins with "b," he is functioning at a coding level. Letters and sounds, or letters and objects, must be associated with each other. At this level of cognitive functioning, the child is beginning to abstract the properties of objects and events. He is not dealing with things solely as they appear in concrete form (a church, or the letter "b"); rather, he is dealing with the letters that will graphically record the sounds of their names.

(Task analysis)NOTESConceptual Level

At the conceptual level, task demands are concerned with the development of meaningful relationships. Of course there is meaning at the perceptual level because a picture of a thing means that thing itself, and at the coding level because a letter stands for a sound. At the conceptual level, however, the task requires the child to relate--that is, to classify objects or events, or to draw inferences from them, or to make statements about their value.

In working with children teachers sometimes get confused about the sources of their failures because they mix perceptual, coding, and conceptual demands in the same task. There is no reason why all three should not be present, as long as teachers are aware of their presence and as long as they are aware of what they are asking the child to do.

Teachers frequently compose their verbal directions on the spur of the moment without taking time to think through all of the implications; the way in which a teacher words the directions for a task plays a large part in determining the level of the task's complexity for the child. As an example, one teacher decided to give a quick drill on initial consonants to a child, and put the following list of words on the chalkboard:

ball      cat      bird      dog      saw      bag

She then gave the following directions (with the indicated results):

- (1) "The word in the box is ball. Show me another word that begins with the same letter as ball." (The child pointed instantly to "bird.")
- (2) "Show me a word that begins with the same letter as box." (The child was unable to do so.)
- (3) "Show me all the words that begin with the same letter as the word in the box." (The child did this successfully.)

The teacher concluded with some frustration that the child's performance was erratic. "Sometimes he knows it and sometimes he doesn't. He's probably perceptually handicapped."

## (Task analysis)

## NOTES

An analysis of the teacher's directions and the child's responses yielded the following information. Task (1) can be placed either at the perceptual level or the coding level, depending on the clues used by the child in solving it. If he used the visual clue of the beginning letter of the word in the box, then he solved the problem at a perceptual level. If he used the auditory clue of the initial sound of "ball," then he solved it at a coding level, as he was able to scan the row of words while remembering the sound, and then pick out a word that began with a letter denoting the same sound. It is also possible that he used both of the clues. Task (2) clearly demands coding skills. The child did not see the word "box." He merely heard it and was then called on to visualize the letter denoting its initial sound and scan the row until finding a word beginning with a letter which stands for the same sound. He was unable to do this. The teacher can infer, at least tentatively, that the child solved Task (1) on the basis of visual-perceptual clues. Task (3) is conceptual; in its demands on the child. He was required to sort out the words that begin with the same letter as the word in the box. This he was able to do.

The teacher can see that the child is able to solve problems of conceptual complexity when given good visual clues. She does not know, however, whether his failure with the coding task is due to an auditory deficiency (memory or discrimination) at the perceptual level, or whether he is intact auditorily but deficient in the integration of auditory and visual (coding) information.

It would not be overly difficult to check these questions in a very short time. For instance, to check for auditory skills the teacher might produce a row of pictures instead of words and say, "This is a ball. Show me another picture of something that begins with the same sound as ball." Or, "Listen, and raise your hand when both pictures begin with the same sound: ball-cat; ball-dog; ball-bag."

The point is this: through the ability to present a carefully worded, pre-analyzed task, the teacher is able to look at the child's successes and failures and immediately choose alternatives to the instructional approach which has just failed. This skill places a teacher far ahead of those whose only explanation of failure is the child's poor memory or short attention span.

Memory

Every task has a memory component which may vary from relatively easy to extremely difficult.

(Task analysis)

NOTES

(1) Awareness. The act of forming a percept often involves comparing a model to an array of items in order to find one just like the model. For example, in a visual discrimination task the teacher says, "See this? Now find one just like it over here." Where the model remains present, the child must be able to "hold" the characteristics of the model long enough to "find one just like it." The nature of the task allows him to glance back at the model as often as he may desire. The memory demand is relatively easy, but it is memory; this type of awareness is what allows him to form his discriminations.

(2) Recognition. If the visual task just described were changed to one in which the teacher shows the model, removes it and then says, "Find one like it here," she can increase the memory loading to a degree considerably more difficult than before. Unable now to visually compare each object with the model, the child must be able to recognize the correct one, among an array of distractors, based on his memory of what the model looked like. At the university level, many of us have experienced this type of memory demand in the form of multiple-choice examination questions.

(3) Recall. The heaviest memory demand is one in which the child is given no concrete clues whatsoever. E.g., "Draw a diamond on your paper." "Spell disable." "What were the names of Napoleon's marshalls at Waterloo?"

Obviously, the memory tasks described here are convergent in nature, requiring the child to work in problem areas that have definable, unambiguous, correct solutions. The types of memory demands involved in tasks which require more creative or divergent responses are not discussed here.

Instructional Alternatives

In the design of instructional alternatives the teacher can move in two directions--lateral and vertical. A lateral move keeps the activity at the same level of complexity (perceptual, coding, or conceptual), but changes the material to bring the task closer to the child's state of readiness at that level. A vertical move changes the level of complexity of the task.

As an example of a lateral move, a teacher working at the conceptual level asked a child to tell how the following three words on the chalkboard were alike:

stuff	laugh	paragraph
-------	-------	-----------

## (Task analysis)

## NOTES

The child's ability to read and understand each word had been established earlier. When the child could not answer correctly, the teacher immediately eliminated the third word and changed the list to read:

stuff	laugh
if	trough
off	rough

The child was able to read each word correctly but was still unable to tell how they were all alike. He was unable to classify this information. The teacher made another change:

staff	laugh
off	trough
puff	rough

The child immediately answered that each pair of words rhymed. (In this section of the country, laugh is "laff.") The rhyming concept allowed the teacher to call the child's attention to the final sounds of the words, and the child was then able to conceptualize on that basis. The teacher would have also been ready for a vertical move if one had been needed. She could have switched to a coding task, associating the "f" sound with the appropriate letters. If necessary, she could have moved to the perceptual level to work on auditory or visual skills.

A useful rule of thumb for moving laterally within a level is to change either the amount of material or the stimulus-signal characteristics of the material. In the case just cited, the teacher chose the latter tactic.

Another teacher presented the following exercise in visual discrimination at the perceptual level:

<b>pod</b>	dop	pop	pdo	pod
------------	-----	-----	-----	-----

The directions to the child were: "Find a word that looks like the word in the box." When the child had difficulty in doing so, the teacher eliminated two of the three distracting words. If the

(Task analysis)

## NOTES

child had failed with that, the material could have been further simplified by using single letters instead of words. Or the teacher could have altered the stimulus-signal characteristics of the material by using letters with more obvious differences. The following group is an example:

pod      fat      cow      sag      pod

As illustrated by the last example, a rule of thumb for making a perceptual task easier is to increase the differences until the child can cope with the material.

Group Instruction

The responses of a child working on pre-analyzed tasks tell the teacher a great deal about the skills and levels at which the child can work successfully. In addition to serving as the basis for individual instruction, this information enables the teacher to individualize instruction in group settings. She is able to use a single activity as a framework for working with a group of children, each of whom may differ from the others in cognitive skills.

As an example, a teacher planned a language arts activity around a large colored picture of a farm scene. She based her questions and directions on her knowledge of each child's specific skills:

"What do we call this animal?" (perceptual)

"What color is it?" (perceptual)

"Point to another animal whose name begins with the same sound as duck." (perceptual)

"What letter does cow begin with?" (coding)

"Show us something that begins with b." (coding)

"Show us all the animals that have wings." (conceptual-sorting)

"How are the birds, chickens, and ducks alike?" (conceptual-classifying)

(Task analysis)

NOTES

"We can see that the sun is going down and the animals are at the barn door. Why are they there?" (conceptual-drawing inferences)

Task Analysis is a major element in the individualization of instruction. An ability to analyze tasks allows the teacher to determine pupil readiness, to teach groups of children with varying skills, and to produce sophisticated alternatives to instructional failure. These skills should be placed in the professional repertoires of all teachers of all children.



BEST COPY AVAILABLE

## PRE-ACADEMIC ABILITIES

INTRODUCTION

The pre-academic abilities section of the guide is organized into eight subgroups of abilities. These are: Body Image and Position in Space, Gross Motor, Fine Motor, Visual Perception, Visual Motor, Spatial Relationships, Auditory Skills, and Language Development.

Each subgroup has its own list of abilities and assessments. Some of these within each subgroup have been selected as the basis for suggested teaching activities. These suggested teaching activities restate the ability and assessment, offer examples of content-development activities and task analysis, identify resources and strategies appropriate for the content-development activity, and suggest reinforcement activities to strengthen the ability.

Some teachers may question the relationship between the development of motor abilities and academic and social abilities. However, our present information indicates that there is a relationship between motor and perceptual-motor abilities and the enhancement of intellectual abilities (Kephart, 1971; McCarthy & McCarthy, 1969). Other investigators suggest that the pupil's self-image is enhanced by gaining competence in motor abilities (Cratty, 1967; Frostig, 1970).

The development of the Body Image and Position in Space subsection was adapted from the work of Cratty as discussed in his book, Developmental Sequences of Perceptual-Motor Tasks. The reader is referred to that work for a comprehensive presentation of body image development as part of the educational program for exceptional children and youth.

References

- Cratty, B.J. Developmental sequences of perceptual-motor tasks. Freeport, L.I., N.Y.: Educational Activities, Inc., 1967.
- Frostig, M., & Maslow, P. Movement education, theory and practice. Chicago, Ill.: Follett Educational Corp., 1970.
- Kephart, N C. The slow learner in the classroom. Columbus, Ohio: Charles E. Merrill, 1971.
- McCarthy, J.J., & McCarthy, J.F. Learning disabilities. Boston, Mass.: Allyn & Bacon, 1969.

These teachers contributed heavily to the organization of this section:

Judith Fontanella, Landstuhl Elementary  
John Katsarura, Frankfurt Elementary  
Irena Montrouil, Wein Main Elementary

ABILITIES AND ASSESSMENTS

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
44	Use appropriate sections of: Frosting, Move-Grow-Learn Program; Creativity, Developmental Sequences of Perceptual Motor Tasks.	p63

BODY IMAGE AND POSITION IN SPACE

1. To identify one's body surfaces.  
I'M GOING TO TOUCH YOU WITH THIS PENCIL. EVERY TIME I TOUCH YOU, TELL ME WHETHER I'M TOUCHING THE FRONT OF YOU, THE BACK OF YOU, OR YOUR SIDE. If the pupil responds by naming the part touched, say, YES, BUT WHERE ON YOUR BODY IS IT? Do not repeat the names of the body surfaces, as this task is meant to determine if the pupil can recall them as the corresponding surface of his body is touched.
2. To identify the location of an object in relation to one's body surfaces.  
SIT FACING ME. I'M GOING TO WALK OVER TO DIFFERENT THINGS IN THE ROOM AND NAME THEM. AFTER I NAME EACH ONE, TELL ME WHETHER IT IS IN FRONT OF YOU, IN BACK OF YOU, TO THE SIDE OF YOU, OVER YOU, OR UNDER YOU.
3. To identify parts of the body.  
Touch parts of the pupil's body and tell him to name them.
4. To move parts of the body in a given direction.  
HOLD YOUR ARMS OUT TO EACH SIDE. PUT YOUR HANDS BEHIND YOU. BEND TO THE FRONT FROM YOUR WAIST.
5. To move the body in a given direction.  
Have the pupil stand facing you, with one side of him touching a wall or a desk.  
MOVE TO YOUR SIDE (MOVE SIDEWAYS). NOW MOVE SIDEWAYS TO THE WALL AGAIN. (Do not say "Move back to the wall.") MOVE FORWARD UNTIL I SAY "STOP." MOVE BACKWARD UNTIL I SAY "STOP."
6. To identify laterally one's own body parts.  
AS I POINT TO EACH PART OF YOUR BODY, TELL ME WHETHER IT'S ON YOUR LEFT SIDE OR RIGHT SIDE.

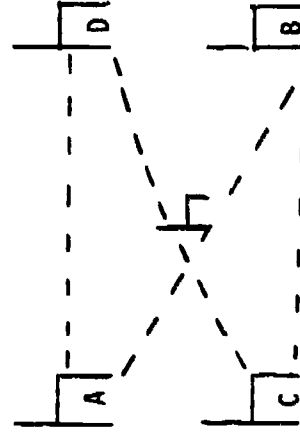
(Abilities and assessments)

7. To move the body in terms of its laterality.  
STAND WITH YOUR RIGHT SIDE AGAINST THE WALL. PUT YOUR LEFT EAR AGAINST BOB'S CHEST. PUT YOUR RIGHT FOOT ON YOUR LEFT KNEE.
8. To locate a stationary object in relation to body laterality.  
SIT FACING ME. AS I SAY THE NAME OF A PERSON OR THING, YOU TELL ME WHETHER IT IS ON YOUR LEFT OR ON YOUR RIGHT.
9. To locate a moving object in relation to body laterality.  
Tie an eraser to a string.  
SWING THIS ERASER AROUND YOUR HEAD SLOWLY. AS IT GOES AROUND, TELL ME WHEN IT'S NEAREST TO YOUR FRONT, YOUR LEFT, YOUR BACK, AND YOUR RIGHT.
10. To locate a stationary object in relation to the laterality of one's moving body.

Form a square, 8 or 10 feet to a side, using 4 chairs to mark the corners. Label the chairs with numbers, letters, or animal pictures. Place another chair in the center of the square. With chalk or masking tape, make walking routes on the floor, as in the diagram.

BEGIN AT A AND WALK SLOWLY TO B, THEN C, THEN D AND THEN BACK TO A. AS YOU WALK, KEEP TELLING ME WHEN THE CHAIR IN THE MIDDLE (CENTER) IS NEAREST TO YOUR LEFT, AND NEAREST TO YOUR RIGHT.

The walking routes may be varied, and directions may be repeated as often as necessary. This is not intended as a sequencing task. If there appears to be any confusion about "middle," then mark the chair with a color or shape and describe it accordingly.



TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
48		
50	Use appropriate sections of: Prostis, Move-Grow-Learn, Program; Creaty, Developmental Sequences of Perceptual Motor Tasks.	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>11. <u>To identify lateral position on an object.</u> Point to the sides of objects such as doors, tables, windows. AS I POINT TO A THING, TELL ME WHETHER I'M POINTING TO ITS LEFT OR RIGHT SIDE.</p> <p>12. <u>To identify lateral position on another person.</u> AS I TOUCH MY ARMS, LEGS, EARS, EYES AND ELBOWS, TELL ME WHETHER I'M TOUCHING MY RIGHT ONE OR MY LEFT ONE.</p> <p>13. <u>To locate a stationary object in relation to the laterality of another person's moving body.</u> Use the chair pattern diagrammed in ability #10 above. AS I WALK BETWEEN THE CHAIRS, KEEP TELLING ME WHICH SIDE OF MY BODY IS CLOSER TO THE MIDDLE CHAIR.</p> <p>14. <u>To locate a moving object in relation to another person's laterality.</u> Tie an eraser to a string. AS I SWING THE ERASER AROUND, KEEP TELLING ME WHEN IT'S NEAREST MY FRONT, MY LEFT, MY BACK, AND MY RIGHT.</p> <p>15. <u>To identify laterality in the movement of another person.</u> Stand facing the pupil. AS I START WALKING TELL ME WHETHER I'M MOVING OFF TO MY LEFT OR TO MY RIGHT.</p>	<p>Use appropriate sections of: Frostig, Love-Graham Program; Creativity, Levelational Sequences of Perceptual Motor Tasks.</p>	<p>p31</p> <p>p31</p>

(Abilities and assessments)GROSS MOTOR--BALANCE

1. To balance on one foot.  
(Demonstrate.) STAND ON ONE FOOT, LIKE THIS, WHILE I COUNT TO FIVE.
2. To balance on one foot, with eyes closed.  
(Demonstrate.) STAND ON ONE FOOT, LIKE THIS, WITH YOUR EYES CLOSED, WHILE I COUNT TO FOUR.
3. To walk the length of a 12-foot walking beam.  
Use a walking beam which is at least 4 inches in width: BEGIN HERE. WALK TO THE END OF THE BEAM.
4. To walk the length of a 12-foot walking beam, stepping over obstacles.  
Have each of three pairs of pupils stretch a jump rope across the beam. The pairs of pupils should be evenly spaced along the beam, and the ropes should be held approximately 2 inches, 4 inches, and 6 inches above the beam.  
WALK ON THE BEAM AND STEP OVER THE ROPES.
5. To walk the length of a 12-foot walking beam, moving under obstacles.  
Have each of two pairs of pupils stretch a jump rope across the beam. The pairs of pupils should be evenly spaced along the beam, and the ropes should be held at the height of the walker's eyes, and at the height of his shoulders.  
WALK ON THE BEAM AND GO UNDER THE ROPES.
6. To walk the length of a 12-foot walking beam while looking at a target.  
With chalk or masking tape, place an X at the pupil's eye level on the wall at the far end of the beam.  
WALK ON THE BEAM. KEEP YOUR EYES ON THE

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
53	p8; 32	
55	p8; 32  Use appropriate sections of: Frostic, Kove-Grow-Learn Program; Cratty, Leveling-Learning Sequence of Perceptual Motor Tasks.	p63

(Abilities and assessments)

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
<p>7. <u>To walk a 12-foot walking beam while looking at a vertically moving target.</u></p> <p>Cut an X from construction paper. It should be at least 4 inches high, with the cross bars 1/2 inch wide. Tape it to the end of a yardstick or pointer. Be sure the X stands out in clear contrast to the wall at the far end of the walking beam. Hold the X at the pupil's eye level at the end of the beam. As he begins walking, move it slowly upwards about 3 feet, then slowly down to the level of the beam. Repeat for as long as it takes the pupil to walk the beam. Watch the pupil's eyes as he walks.</p> <p>WALK ON THE BEAM AND KEEP YOUR EYES ON THE X.</p> <p>8. <u>To walk a 12-foot walking beam while looking at a laterally moving target.</u></p> <p>Make an X, as in ability #7. Hold the X at the pupil's eye level at the end of the beam. As he begins walking, move it slowly in a straight line 4 feet to the pupil's right, the back to the beam and 4 feet to his left, then back, etc., until he completes the walk. Watch the pupil's eyes as he walks.</p> <p>WALK ON THE BEAM AND KEEP YOUR EYES ON THE X.</p> <p>9. <u>To walk a 12-foot walking beam while looking at a diagonally moving target.</u></p> <p>Hold the X at the end of the beam, about 4 feet to the pupil's right, and 3 feet above his eye level. As he walks, move it slowly and diagonally to his lower left. Move the X back to the starting position in a similar manner. Watch the pupil's eyes as he walks. Repeat in the other diagonal.</p> <p>WALK ON THE BEAM AND KEEP YOUR EYES ON THE X.</p>			
	(Use appropriate sections of: Frostig, Move-Grow-Learn Program; Creativity, Developmental Sequences of Perceptual Motor Tasks.		

(Abilities and assessments)GROSS MOTOR--AGILITY

1. To move from a prone to a standing position.  
Have the pupil lie on his front with his head toward you and his palms down beside his head.  
WHEN I SAY "GO!" STAND UP AND FACE ME AS QUICKLY AS YOU CAN.
2. To move from a supine to a standing position.  
Have the pupil lie on his back with his feet toward you, arms by his sides.  
WHEN I SAY "GO!" STAND UP AND FACE ME AS QUICKLY AS YOU CAN.
3. To move from a standing to a prone to a standing position.  
Have the pupil stand facing you: WATCH ME. Demonstrate moving to a prone position. Arms should be bent, with palms flat on the floor beside the head.  
WHEN I SAY "GO!" DO WHAT I JUST DID: GET DOWN ON YOUR FRONT AND THEN STAND UP AND FACE ME.
4. To move from a standing to a supine to a standing position.  
Have the pupil stand facing you: WATCH ME. Demonstrate moving to a supine position, arms by your sides, and returning to the standing position.  
WHEN I SAY "GO!" DO WHAT I JUST DID: GET DOWN ON YOUR BACK AND THEN STAND UP AND FACE ME.
5. To move from a standing to a supine to a prone to a standing position.  
Have the pupil stand and face you: WATCH ME. Demonstrate.  
WHEN I SAY "GO!" DO WHAT I JUST DID: GET DOWN ON YOUR BACK. ROLL OVER TO YOUR FRONT. THEN, STAND UP AND FACE ME.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p8; 32	
	Use appropriate sections of: Prostg, Move-Grow-Learn Program; Creaty, Developmental Sequences of Perceptual Motor Tasks.	
	p8; 32	



(Abilities and assessments)

6. To move from a standing to a prone to a supine to a standing position.  
Have the pupil stand and face you: WATCH ME. Demonstrate.  
  
WHEN I SAY "GO!" DO WHAT I JUST DID: GET DOWN ON YOUR FRONT. ROLL OVER TO YOUR BACK. THEN, STAND UP AND FACE ME.

GROSS MOTOR--LOCOMOTION AND AGILITY.

1. To walk, with reciprocal body motion.

Observe the pupil walking in the classroom or on the playground. Watch for shuffling, jerking, leading with one side, jarring step, marked swaying, bending forward, hitting one foot with the other, walking on toes, landing on toes rather than heels.

To run, charging direction three times.

Lay out a baseball diamond, using chalk or masking tape to designate the bases. Each leg of the diamond should be about 20 feet in length. Connect the bases with a single line. Be sure the bases are not obscured by reflected light or window glare.

START HERE AT HOME PLATE AND RUN ALL THE WAY AROUND THE BASES. BE SURE TO TOUCH (STEP ON) EVERY BASE. DON'T STOP UNTIL YOU'RE BACK HERE AT "HOME."

Demonstrate. Watch for the pupil straying away from the base lines, overshooting or undershooting the bases, stopping before changing direction, and using the same foot consistently to touch the bases.

3. To hop on one foot.

With chalk or masking tape, mark off a string of five contiguous 1-foot squares.

SHOW US HOW YOU PLAY HOPSCOTCH. HOP ON ONE FOOT TO EACH SQUARE, WITHOUT STEPPING ON ANY LINES . . . NOW STEP OUT, TURN AROUND, AND HOP BACK ON THE OTHER FOOT.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p8; 32	
	Use appropriate sections of: Frosting, Move-Grow-Learn Program; Creativity, Leveling Sequences of Perceptual Motor Tasks.	



## (Abilities and assessments)

4. To jump with both feet.

Mark off five 2x1-foot boxes, with long sides contiguous.

JUMP TO EACH BOX WITH BOTH FEET. MAKE YOUR FEET JUMP AT THE SAME TIME AND LAND AT THE SAME TIME. (Demonstrate if necessary.)



Pupil

5. To jump backwards.

Use the same boxes as in ability #4 as general guides for the pupil, but do not require precise accuracy.

JUMP BACKWARDS INTO EACH BOX. MAKE YOUR FEET JUMP AND LAND AT THE SAME TIME. (Demonstrate if necessary;.)

6. To jump, making a 180-degree turn.

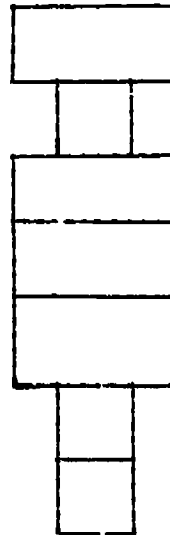
Mark off a 2x1-foot box on the floor.

STAND IN THE BOX, FACING ME . . . JUMP UP AND TURN AROUND IN THE AIR SO THAT YOU LAND IN THE BOX, FACING THE WALL. (Demonstrate if necessary.)

7. To hop, jump, and turn.

Mark off a hopscotch-type floor pattern of 1x1-foot and 2x1-foot boxes.

HOP ON ONE FOOT TO THE SMALL BOXES . . . JUMP ON BOTH FEET TO THE BIGGER BOXES. WHEN YOU GET TO THE LAST BIG BOX, JUMP UP AND TURN AROUND IN THE AIR. NOW, COME BACK TO ME. (Demonstrate if necessary.)



Pupil →

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
56	p8; 32	p63
	Use appropriate sections of: Frostig, Move-grow-Learn Program; Grady, Level-Optimal Sequences of Perceptual Motor Tasks.	

(Abilities and assessments)

FINE MOTOR SKILLS

1. To coordinate arm and hand movements.

Have the pupil sit at his desk. Place 4 blackboard erasers (or other objects of similar size and weight) on the floor beside his chair.

REACH DOWN AND PICK UP THE ERASERS, ONE AT A TIME, AND PUT THEM ON YOUR DESK . . . NOW, USE YOUR OTHER HAND AND PUT THE ERASERS ON THE FLOOR ON THE OTHER SIDE OF YOUR CHAIR.

2. To coordinate both hands.

Give the pupil an object such as a blackboard eraser or a banana to hold in one hand. Have him switch the object to his other hand. Repeat this 6 times.

3. To coordinate hand and fingers.

Place one page of a Stars & Stripes newspaper flat on the pupil's desk, one corner pointing toward the pupil. Have him, using one hand only, pick up the corner of the paper and crumple the entire sheet into a ball.

4. To coordinate thumb and fingers.


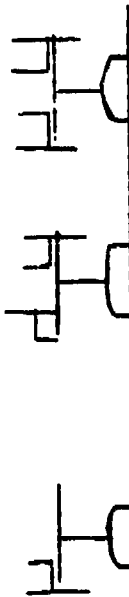
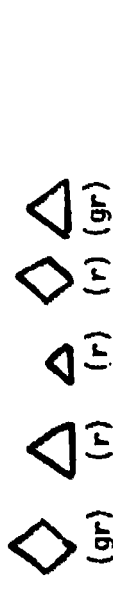
BUTTON YOUR COAT.

5. To make a single cut with a scissors.

Give the pupil a 1x5-inch strip of construction paper. Demonstrate cutting the paper across its short dimension by making one cut with the scissors. Then, have the pupil do it.

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
60	Use appropriate sections of: Frostig, Move-Grow-Learn Program; Cratty, Leveling Sequences of Perceptual Motor Tasks.	p63	
62			

## (Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p><u>VISUAL PERCEPTION</u></p> <ol style="list-style-type: none"> <li>To match a foreground figure against a complex background. Use a large picture, filled with detail (e.g., the "Circus" story poster in the Peabody Language Development Kit, Level #P). Present the word CIRCUS on a flashcard: HERE'S THE WORD "CIRCUS." LOOK AT THE PICTURE AND FIND THE SAME WORD IN IT. Or, present a picture of a white horse: HERE'S A HORSE. FIND ONE LIKE IT IN THE PICTURE.</li> <li>To match directional constancy within an array of mirror images. Arrange 6 identical chairs in the following pattern. Point to the lone chair. LOOK AT THIS CHAIR. NOW LOOK AT THE OTHER CHAIRS AND POINT TO THE ONE THAT IS JUST LIKE IT.</li> <li>To match directional constancy within an array of rotations and mirror images. Arrange 5 identical chairs and 3 tables in the following pattern. Point to the lone chair. LOOK AT THIS CHAIR. NOW LOOK AT THE OTHER CHAIRS AND POINT TO THE ONE THAT IS JUST LIKE IT.</li> <li>To match for color, shape, and size. Present an array such as the following: SEE THIS ONE? LOOK OVER HERE AND FIND ONE JUST LIKE IT.</li> </ol>	  	<p>p7; 27</p> <p>64</p> <p>p7; 22, 27</p>

(Abilities and assessments)

5. To match for number.

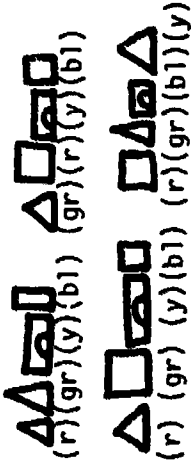
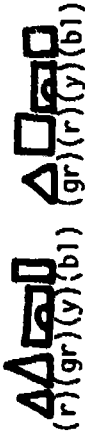
Arrange identical pencils in the following pattern:



SEE THIS SET OF PENCILS? LOOK OVER HERE AND FIND A SET JUST LIKE IT.

6. To match a sequence for color, shape, and size.

Arrange sets of colored blocks, such as the following:



SEE THIS SET OF BLOCKS? LOOK OVER HERE AND FIND A SET JUST LIKE IT.

7. To match a picture.

Present a column of simple pictures, to the left of which is a picture identical to one of those in the column.

SEE THIS PICTURE BY ITSELF? LOOK OVER HERE. FIND ONE LIKE IT. NOW, DRAW A LINE BETWEEN THE ONES THAT ARE ALIKE.

8. To synthesize a picture from its parts.

Present a picture of a simple object cut into four pieces.  
PUT THESE TOGETHER SO THEY'LL MAKE A PICTURE.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
65	p7; 22	

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
9. <u>To match letters of the alphabet.</u>  Present a column of upper case letters, to the left of which is a letter identical to one of those in the column.  SEE THIS LETTER? LOOK OVER HERE. FIND ONE LIKE IT. NOW, DRAW A LINE BETWEEN THE LETTERS THAT ARE ALIKE.			
10. <u>To match words.</u>  Present a column of words, to the left of which is a word identical to one of those in the column.  SEE THIS WORD BY ITSELF? LOOK OVER HERE. FIND ONE LIKE IT. NOW, DRAW A LINE BETWEEN THE WORDS THAT LOOK ALIKE.			
<u>VISUAL MOTOR SKILLS</u>			
1. <u>To initiate coordinated eye-hand movement.</u>  Suspend a tennis ball on a string, to the height of the pupil's eyes. Stand facing the pupil, about 4 feet away.  PUSH THE BALL TO ME.		p7; 22, 27	p63
2. <u>To catch an approaching object.</u>  Use the suspended ball described in ability #1. Push it toward the pupil and tell him to catch it.			
3. <u>To catch a laterally moving object.</u>  Swing the suspended ball slowly across the pupil's front (at a right angle to his line-of-sight) well within his arm reach, and tell him to catch it.			p63

(Abilities and assessments)

4. To throw an object to a target.
- Stand the pupil 4 feet from a wastebasket and have him throw bean bags or blackboard erasers into it.
5. To hit a ball with a bat.
- Suspend a plastic "wiffle" ball on a string, at the height of the pupil's shoulders. Give the pupil a plastic bat, position him facing the ball, and tell him to hit it.
6. To initiate a coordinated eye-foot movement.

Get a cardboard carton that is at least 12x12 inches in width and 36 inches long. Open both ends and lay it on its side. Place a 10-inch playground ball on the floor at one end of the carton. Have the pupil stand facing the ball while you stand at the other end of the carton.

**KICK THE BALL TO ME.**

7. To jump a laterally moving rope.

Have two helpers slowly swing a 10-foot jump rope from side to side in a relaxed arc that brushes against the floor at its lowest point. Tell the pupil to jump the rope.

8. To draw connected vertical, horizontal, and diagonal lines.

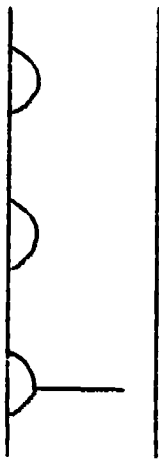
Present a paper with four 1/8-inch dots, as illustrated. The dots should be spaced 6 inches apart. (The numbers for the teacher's guidance and need not be included on the pupil's paper.)

WITH YOUR PENCIL, DRAW A LINE FROM THIS (#1) DOT DOWN TO THIS DOT, ACROSS TO THIS DOT AND UP TO THIS DOT. KEEP YOUR PENCIL ON THE PAPER.

The pupil's pencil should not overshoot a dot by more than 1/4 inch.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		<p>p63</p> <p>p63</p>

(Abilities and assessments)

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
9. <u>To draw a line from a concrete beginning point to an implied ending point.</u>  Present a sketch, as illustrated.  HERE IS A ROPE HANGING FROM THE GYM CEILING. IT ALMOST COMES DOWN TO THE FLOOR SO THAT WE CAN CLIMB AND SWING ON IT. TAKE YOUR PENCIL AND DRAW TWO MORE ROPES THAT ALMOST COME DOWN TO THE FLOOR. BEGIN UP HERE.	68		
			
10. <u>To copy geometric forms.</u>  Or, separate sheets of paper present a 2-inch circle, cross, square, X, rectangle, triangle, and diamond.  LOOK AT THIS CIRCLE. MAKE ONE JUST LIKE IT ON YOUR PAPER. (Repeat with other geometric forms.)	70	p7; 22	
11. <u>To name the eight basic colors.</u>  Present individual color cards, and tell the pupil to name them.			
12. <u>To name a square, circle, triangle, and rectangle.</u>  Present individual shape cards: TELL ME THE NAME OF THIS.			
SPATIAL RELATIONSHIPS			
1. <u>To recognize points in space.</u>  POINT TO A PLACE WHERE THESE TWO WALLS MEET (COME TOGETHER). POINT TO A PLACE WHERE THIS WALL MEETS THE FLOOR. POINT TO A PLACE WHERE THIS WALL MEETS THE CEILING. POINT TO WHERE THESE TWO WALLS AND THE CEILING MEET AT THE SAME PLACE. POINT TO WHERE THESE TWO WALLS AND THE FLOOR MEET AT THE SAME PLACE.			

(Abilities and assessments)

DOES THE CEILING MEET THE FLOOR?  
DO THESE TWO WALLS (opposite) MEET?  
DO THESE TWO WALLS (adjacent) MEET?  
DOES THAT WALL MEET THE FLOOR AND THE CEILING?

2. To match positions in space.

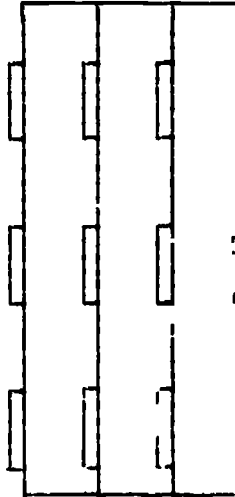
Make a pattern on a pegboard (see sample).  
Give the pupil another pegboard, and pegs.

MAKE YOUR PEGBOARD LOOK LIKE THIS ONE.



3. To locate positions in space.

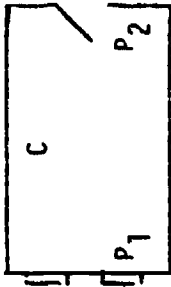
Use 9 identical objects such as textbooks. Place 3 on a bookshelf below the pupil's knees, evenly spaced so that the outer books are within arm's reach. Place 3 on a shelf at waist height, and 3 on a shelf at shoulder height (see illustration). Blindfold the pupil and stand him in front of the bookcase.



KEEP YOUR FEET IN PLACE WHILE I PUT YOUR HAND ON A BOOK. NOW I'LL HELP YOU PUT IT BACK. (Remove the blindfold.) POINT TO THE BOOK YOU PICKED UP.

4. To relate points in space to oneself.

Place a clock (or any other conspicuous object) on a table at the front of the classroom. Have the pupil stand at one side of the classroom (P<sub>1</sub>): POINT TO THE CLOCK. Have the pupil cross over to the opposite side of the classroom (P<sub>2</sub>): POINT TO THE CLOCK AGAIN. WHY ARE YOU POINTING IN THE DIRECTION<sup>2</sup> OF THE WINDOWS NOW, WHEN BEFORE YOU WERE POINTING IN THE DIRECTION OF THE DOOR? (Answer: The clock is in the same place, but I have moved.)

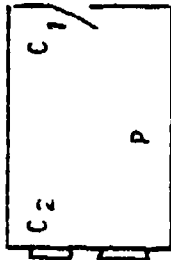


TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies



(Abilities and assessments)

Have the pupil sit in the center of the room. Place the clock at one side of the room (C<sub>1</sub>): POINT TO THE CLOCK. Move the clock across to the opposite side of the room (C<sub>2</sub>): POINT TO THE CLOCK AGAIN. WHY ARE YOU POINTING IN THE DIRECTION OF THE WINDOWS NOW, WHEN BEFORE YOU WERE POINTING TOWARD THE DOOR? (Answer: I am in the same place, but the clock has been moved.)



5. To relate points in space to each other.

Label objects in the room with numbers or colors: FIND THE OBJECT WITH NUMBER FOUR (THE RED CIRCLE) ON IT. WALK TO NUMBER THREE. NOW, WALK TO NUMBER ONE. Etc.

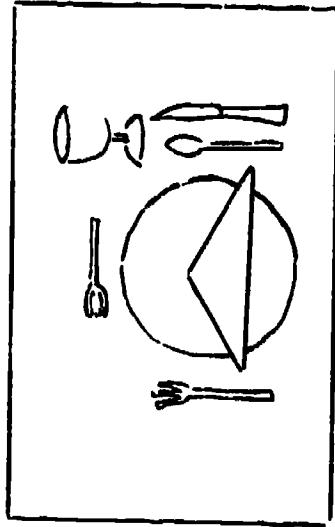
6. To estimate distance.

Seat the pupil across the room (at least 20 feet) from the door of the classroom. Give him a 5-foot length of string. Be sure he knows the meaning of "wide."

LOOK AT THE DOOR. HOW WIDE DO YOU THINK IT IS? HOLD THE STRING OUT BETWEEN YOUR HANDS TO SHOW HOW WIDE YOU THINK THE DOOR IS.

7. To follow a spatial plan.

Prepare a diagram of a typical host-nation table setting (see sample). Give the pupil the diagram and the tableware and tell him to arrange the place setting as in the diagram.



TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
71		
73		

ABILITIES AND ASSESSMENTS

AUDITORY SKILLS

1. To discriminate among nonverbal sounds.

Have pupils put heads down and raise hands if the same sound is repeated. Play musical instruments, sometimes making the same sound twice, and sometimes making two different sounds.

ARE THESE THE SAME SOUNDS OR DIFFERENT SOUNDS?

2. To identify nonverbal sounds.

CLOSE YOUR EYES. I WILL MAKE SOME NOISES WITH THINGS IN THE ROOM. YOU TELL ME WHAT THING IS MAKING THE NOISE.

3. To locate sound sources.

I WILL MAKE SOME NOISES. YOU CLOSE YOUR EYES AND POINT TO WHERE THE NOISES ARE COMING FROM.

Hit a bell or triangle in several parts of the room, e.g., in back of the pupil, to his right, etc.

4. To distinguish between levels of sound intensity.

Raise and lower the volume of a radio.

WHEN THE MUSIC GETS LOUD, RAISE YOUR HAND. WHEN IT GETS SOFT, LOWER YOUR HAND.

5. To distinguish between far sounds and near sounds.

Play a tape of a truck approaching from a long distance, passing the listener, and re eding into the distance

WHEN YOU THINK THE TRUCK IS GETTING CLOSE TO US, RAISE YOUR HAND. KEEP IT RAISED UNTIL YOU THINK IT'S GOING AWAY FROM US.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
75		
77		
79		p29

## (Abilities and assessments)

6. To distinguish between long and short sounds.  
Using the same sound source (e.g., a buzzer, a pitch pipe, a whistle, etc.), make a long noise and a short noise.  
LISTEN WHILE I MAKE THESE NOISES AGAIN. WHEN YOU HEAR A LONG NOISE, MAKE A LONG LINE ON THE CHALKBOARD. WHEN YOU HEAR A SHORT NOISE, MAKE A SHORT LINE.
7. To distinguish between fast and slow sounds.  
Using the same sound source (e.g., a drum, a bell, a rhythm band triangle, etc.), play it rapidly and play it slowly. Keep it out of sight.  
LISTEN WHILE I DO THIS AGAIN. WHEN YOU HEAR ME PLAY IT FAST, OPEN AND CLOSE YOUR FINGERS AS FAST AS YOU CAN. WHEN YOU HEAR ME PLAY IT SLOWLY, OPEN AND CLOSE YOUR FINGERS SLOWLY.
8. To discriminate between words.  
Prepare a worksheet as described in the Suggested Teaching Activity for this skill.  
LISTEN, I'M GOING TO SAY TWO WORDS. IF THEY ARE THE SAME, PUT A CHECK BETWEEN THE TWO CIRCLES BECAUSE THEY'RE THE SAME, TOO. IF THE WORDS ARE DIFFERENT, PUT A CHECK BETWEEN THE CIRCLE AND THE SQUARE BECAUSE THEY'RE DIFFERENT.
9. To recognize a given sound in words.  
Tell the child to close his eyes.  
I AM GOING TO SAY A WORD. IF THE WORD HAS THE "S" SOUND, THEN RAISE YOUR HAND. (Use any sound.)  
Say the words--ball, sun, cat, house, present, chair, whistle, etc.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
81		
83		

(Abilities and assessments)10. To recognize initial consonant sounds.

LISTEN, I'M GOING TO SAY SOME WORDS: "BOX, BOAT, BAT." I'M GOING TO SAY THEM AGAIN, AND I WANT YOU TO LISTEN TO HOW THEY BEGIN. (Repeat.) NOW I'M GOING TO SAY SOME MORE WORDS, AND EACH TIME YOU HEAR A WORD THAT BEGINS LIKE "BOX, BOAT, OR BAT," RAISE YOUR HAND QUICKLY. (Repeat for other initial consonant sounds and initial consonant digraph sounds.)

11. To recognize final consonant sounds.

LISTEN: "FIRST, MUST, LOST." I'M GOING TO SAY THESE WORDS AGAIN AND I WANT YOU TO LISTEN TO HOW THEY END. (Repeat.) NOW I'M GOING TO SAY SOME MORE WORDS, AND EACH TIME YOU HEAR A WORD THAT ENDS LIKE "FIRST, MUST, OR LOST," RAISE YOUR HAND QUICKLY. (Repeat for other final consonant sounds and final consonant digraphs.)

12. To recognize medial consonant sounds.

LISTEN TO THE SOUND IN THE MIDDLE OF THESE WORDS: "JELLO, HOLLOW, BILLY." (Repeat.) I'M GOING TO SAY SOME MORE WORDS, AND EACH TIME YOU HEAR ONE WHERE THE MIDDLE PART IS LIKE THE MIDDLE PART IN "JELLO, HOLLOW, OR BILLY," RAISE YOUR HAND QUICKLY. (Repeat for the other medial consonant sounds.)

13. To recognize long vowel sounds.

LISTEN: "CAKE, LATE, GAVE." CAN YOU HEAR THE "AAY" SOUND? LISTEN AGAIN. (Repeat.) I'M GOING TO SAY SOME MORE WORDS, AND EACH TIME YOU HEAR A WORD WITH THE "AAY" SOUND IN IT, RAISE YOUR HAND QUICKLY. (Repeat for the other long vowel sounds.)

14. To recognize short vowel sounds.

LISTEN: "CUP, BUT, SHUT." CAN YOU HEAR THE "UH" SOUND? LISTEN AGAIN. (Repeat.) I'M GOING TO SAY SOME MORE WORDS, AND EACH TIME YOU HEAR A WORD WITH THE "UH" SOUND IN IT, RAISE YOUR HAND QUICKLY. (Repeat for the other short vowel sounds.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
15. <u>To reproduce a nonverbal sound pattern.</u> I AM GOING TO CLAP MY HAND. LISTEN, BECAUSE I WANT YOU TO CLAP YOURS THE SAME WAY. Clap a four-beat pattern three times: xxxx xxxx xxxx	84		
16. <u>To reproduce a verbal sound pattern.</u> I AM GOING TO SAY SOMETHING. LISTEN, BECAUSE I WANT YOU TO SAY IT THE SAME WAY: (1) "THE CAR WILL STOP." (2) "HERE IS YOUR CANDY." (3) "MY HANDS ARE DIRTY."	85		
17. <u>To identify words by blending their syllables.</u> LISTEN TO THESE WORDS, AS I GIVE THEM IN PARTS. THEN TELL ME THE WHOLE WORD: (1) SHOE, (2) TA-BLE, (3) E-RA-SER, (4) B'-CY-CLE, (5) RE-FRIG-ER-A-TOR.			

BODY IMAGE AND POSITION IN SPACE

Ability and Assessment:

1. To identify one's body surfaces.

I'M GOING TO TOUCH YOU WITH THIS PENCIL. EVERY TIME I TOUCH YOU, TELL ME WHETHER I'M TOUCHING THE FRONT OF YOU, THE BACK OR YOU, OR YOUR SIDE. If the student responds by naming the part touched, say, YES, BUT WHERE ON YOUR BODY IS IT? Do not repeat the names of the body surfaces, as this task is meant to determine if the student can recall them as the corresponding surface of his body is touched.

Task Analysis

Process                      Cognition

In: visual nonverbal      perceptual  
tactile nonverbal      recall  
Out: vocal verbal

Content-Development Activities:

- (1) Demonstrate and then have two pupils squat back-to-back with their arms tucked.

STAND UP BY PUSHING YOUR BACKS TOGETHER AND PUSHING THE BOTTOMS OF YOUR FEET AGAINST THE FLOOR.

Have them move up and down several times.

- (2) Use a mat, carpet, or sheet of cardboard.

LIE ON YOUR BACK. ROLL OVER ONTO YOUR FRONT. MAKE BELIEVE YOU'RE A SNAKE: WRIGGLE YOUR BODY LIKE A SNAKE. ROLL OVER ON YOUR BACK. SHOW US HOW YOU'D SWIM ON YOUR BACK.

Task Analysis

Process                      Cognition

In: auditory verbal      perceptual  
Out: motor nonverbal      recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Body image and position in space)

- (3) Repeat content-development activity (1), but do not demonstrate. Give as many descriptions of movements as necessary.

Task Analysis	
Process	Cognition
In: auditory verbal	perceptual
Out: motor nonverbal	awareness

- (4) Demonstrate, and then tell two pupils to lie face down on a mat. Have pupils say, "I'm on my back . . . front . . . side" as they roll into the corresponding positions.

HOLD EACH OTHER'S HANDS. ROLL TO YOUR SIDE. NOW, ROLL TO YOUR FRONT. NOW, ROLL TO THE OTHER SIDE.

Task Analysis	
Process	Cognition
In: auditory verbal	perceptual
visual nonverbal	awareness
tactile/kinesesthetic nonverbal	
Out: motor nonverbal	

- (5) Construct an obstacle course by making tight places for the pupils to squeeze between (e.g., beside a filing cabinet close to the wall, through a cardboard box, and under a chair).

SQUEEZE BETWEEN THE CABINET AND THE WALL. FEEL THE FRONT OF YOUR BODY AND YOUR BACK TOUCH AS YOU GO THROUGH. FEEL YOUR SIDES TOUCH AS YOU CRAWL THROUGH THE BOX. FEEL YOUR BACK TOUCH AS YOU CRAWL UNDER THE CHAIR.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Body image and position in space)

Task Analysis  
Process  
In: auditory verbal perceptual  
visual nonverbal awareness  
tactile nonverbal  
Out: motor nonverbal

(6) Repeat the assessment activity, but say the names of the three body surfaces each time you touch a body surface.

WHICH PART OF YOU DID I TOUCH: FRONT, BACK OR SIDE?

Task Analysis  
Process  
In: visual nonverbal perceptual  
tactile nonverbal recognition  
auditory verbal  
Out: vocal verbal

Reinforcement Activities:

(1) Repeat any of the content-development activities via pantomime directions. As the pupils perform them, have them tell you which of their body surfaces are in contact with other surfaces.

Task Analysis  
Process  
In: visual nonverbal perceptual  
tactile/kinesthetic awareness  
nonverbal  
Out: vocal verbal

TEACHER TIPS	
Teaching Resources	Teaching Strategies



(Body image and position in space)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
<p>(2) Have pupils work in pairs. One pupil will lie down on his back on a piece of paper larger than his body. The other pupil will draw a crayon outline of his partner's body.</p> <p>LOOK AT THE OUTLINE OF YOURSELF. TOUCH YOUR SIDE, TOUCH YOUR FRONT, etc.</p> <p>(3) Take photographs of the pupils from front, back and side angles. Display all the front photographs in one place in the front of the room, all the side photographs on either side of the classroom, and all the back photographs in a place in the back of the classroom. Point to each set:</p> <p>PICTURES OF OUR FRONTS ARE IN FRONT OF US. PICTURES OF OUR SIDES ARE ON THE SIDES OF US. PICTURES OF OUR BACKS ARE IN BACK OF US . . . JOHNNY, FIND YOUR PICTURE IN FRONT OF YOU. IS IT A PICTURE OF YOUR FRONT, BACK, OR SIDE?</p> <p>(4) Play "Simon Says." Use front, back, sides. E.g.,</p> <p>JANET, SIMON SAYS TOUCH YOUR FRONT. Or, JUDY, SIMON SAYS LIE DOWN ON YOUR BACK.</p>	p29

(Body image and position in space)

Ability and Assessment:

7. To move the body in terms of its laterality.

STAND WITH YOUR RIGHT SIDE AGAINST THE WALL. PUT YOUR LEFT EAR AGAINST BOB'S CHEST. PUT YOUR RIGHT FOOT ON YOUR LEFT KNEE.

Content-Development Activities:

(1) Cut two corners off a sheet of brightly colored construction paper. Tape one piece of paper to the pupil's left shoe and the other to the back of his left hand. Crumple the remainder of the sheet into a wad and drop it to the floor.

THE MARKERS ON YOUR LEFT FOOT AND YOUR LEFT HAND ARE \_\_\_\_\_ (name color of paper) JUST LIKE THE WADDLED PAPER ON THE FLOOR. REMEMBER THE \_\_\_\_\_ (name color of paper) IS ON YOUR LEFT HAND. NOW, KICK THE WAD OF PAPER WITH YOUR LEFT FOOT. PICK UP THE WAD OF PAPER WITH YOUR LEFT HAND. IN WHICH HAND IS THE WAD OF PAPER NOW? DROP THE WAD OF PAPER AND KICK IT WITH YOUR LEFT FOOT.

(2) Repeat content-development activity (1) for the right hand only. (Do not use a color cue.)

(3) Mark the left foot and wrist as above. Have the pupil side-step to the left, then to the right. Have the pupil "frog jump" to the left and right. Have the pupil roll to the left and right.

HOW DO YOU REMEMBER WHICH SIDE IS LEFT? HOW DO YOU KNOW WHICH SIDE IS RIGHT?

(4) Mark the left foot and wrist as above.

TURN TO YOUR LEFT. TURN TO YOUR LEFT AGAIN. NOW TURN TO YOUR RIGHT. JUMP UP IN THE AIR AND TURN TO YOUR LEFT. JUMP UP IN THE AIR AND TURN TO YOUR RIGHT.

Repeat each of the movements with the pupil's eyes closed.

(5) Remove colored markers and repeat movements, first with eyes open, then with eyes closed.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Bnd" image and position in space)

Reinforcement Activities:

Selected Peabody Language Development Kit activities:

Level #1, Lesson 28-3

Level #2, Lesson 3-3

Level #3, Lesson 88-3

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Body image and position in space)

Ability and Assessment:

10. To locate a stationary object in relation to the laterality of one's moving body.

Form a square, 8 or 10 feet to a side, using 4 chairs to mark the corners. Label the chairs with numbers, letters, or animal pictures. Place another chair in the center of the square. With chalk or masking tape, make walking routes on the floor, as in the diagram.

BEGIN AT A AND WALK SLOWLY TO B, THEN C, THEN D, AND THEN BACK TO A. AS YOU WALK, KEEP TELLING ME WHEN THE CHAIR IN THE MIDDLE (CENTER) IS NEAREST TO YOUR LEFT, AND NEAREST TO YOUR RIGHT.

The walking routes may be varied, and may be repeated as often as necessary. This is not intended as a sequencing task. If there appears to be any confusion about "middle," then mark the chair with a color or shape and describe it accordingly.

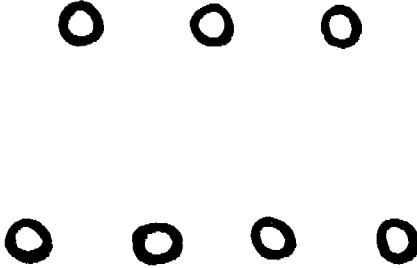
Content-Development Activities:

- (1) Arrange two rows of large empty cans in parallel, about three feet apart. Stagger the order of the cans. Give the pupil some marbles or coins and tell him to walk slowly between the rows. As he comes abreast of a can on his left, DROP ONE IN THE CAN ON YOUR LEFT. As he comes abreast of a can on his right, DROP ONE IN THE CAN ON YOUR RIGHT. Repeat for the entire walk.

Task Analysis

<u>Process</u>	<u>Cognition</u>
In: visual nonverbal auditory verbal	perceptual awareness
Out: motor nonverbal	

↑  
Pupil



TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p31

<u>(Body image and position in space)</u>		TEACHER TIPS	
		Teaching Resources	Teaching Strategies
<p>(2) Keep the cans the same distance apart, but arrange them in pairs. As the pupil walks between them, DROP ONE IN THE CAN ON YOUR LEFT . . . ON YOUR RIGHT . . . ON YOUR RIGHT . . .</p> <div><div><div>Process</div><div>Task Analysis</div><div>Cognition</div></div><div><div>In: visual nonverbal</div><div>auditory verbal</div><div>Out: motor nonverbal</div></div><div>perceptual recognition</div></div> <div><div>○</div><div>○</div><div>○</div><div>○</div></div> <div><div></div><div></div><div></div><div>↑ Pupil</div></div>			p31
<p>(3) Rearrange the cans as in activity (1) above. Tell the student to walk between the rows.</p> <p>WHEN YOU COME TO EACH CAN, TELL US WHETHER IT'S ON YOUR RIGHT OR ON YOUR LEFT.</p> <div><div><div>Process</div><div>Task Analysis</div><div>Cognition</div></div><div><div>In: visual nonverbal</div><div>Out: vocal verbal</div></div><div>perceptual recall</div></div>			p29
<p><u>Reinforcement Activities.</u></p> <p>(1) Have pictures of familiar animals turned face up on desk tops; place desks parallel to each other. Label the path between the desks "Forest Path."</p> <p>WALTER, YOU WILL WALK THROUGH THE FOREST. TELL ME WHERE EACH ANIMAL IS AS YOU WALK IN THE FOREST PATH. SAY, "THE TIGER IS ON MY LEFT; THE MONKEY IS ON MY RIGHT," etc.</p>			

(Body image and position in space)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
<p>(2) Have the pupils stand in two rows. Select one pupil to walk between the rows.</p> <p>SALLY, WALK DOWN THE LINE. AS YOU COME TO EACH OTHER PERSON, SAY HIS NAME AND TELL ME IF HE IS ON YOUR RIGHT OR ON YOUR LEFT.</p> <p>(3) Play "Follow the Leader." As the leader passes objects, he/she says, "The _____ (name of object such as teacher's desk, door, window) is on my _____. " The class answers in unison, "right" or "left," as appropriate.</p> <p>(4) Construct an obstacle course (preferably on the playground, but in the classroom in inclement weather) using objects familiar to your pupils. Have them pass by each object and identify its right or left position as they pass it.</p>	

GROSS MOTOR--BALANCE

Ability and Assessment:

1. To balance on one foot.

(Demonstrate.) STAND ON ONE FOOT, LIKE THIS, WHILE I COUNT TO FIVE.

Content-Development Activities:

(1) Have the pupil assume a hands-and-knees position.

HOLD THIS (touch hand) HAND OUT IN FRONT OF YOU. PUT IT BACK ON THE MAT. HOLD THIS (touch foot on opposite side) FOOT OUT BEHIND YOU. PUT IT BACK ON THE MAT. NOW HOLD OUT YOUR HAND AND FOOT AT THE SAME TIME, WHILE I COUNT TO FIVE (Touch the appropriate hand and foot if necessary.)

(2) Repeat, with hand and foot on same side of body.

(3) Have the pupil kneel, torso upright, hands on hips.

(4) Have the pupil kneel, torso upright, hands on hips.

NOW PUT THIS (touch foot) FOOT OUT FLAT ON THE MAT IN FRONT OF YOU.

Repeat, with other foot.

(5) Have the pupil kneel, torso upright, hands on hips.

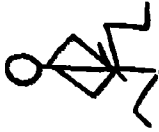
REACH BACK AND GRAB YOUR ANKLES. PICK YOUR FEET OFF THE MAT AND ROCK BACK AND FORTH LIKE THIS (demonstrate).

(6) Have the pupil kneel, torso upright, hands on hips.

LIFT YOUR TOES OFF THE MAT AND BALANCE ON YOUR KNEES, LIKE THIS (demonstrate). KEEP YOUR HANDS ON YOUR HIPS.

(7) Have the pupil kneel, torso upright, hands on hips.

REACH BACK AND GRAB YOUR ANKLES. PICK ONE LEG OFF THE MAT; PUT IT DOWN AND PICK THE OTHER LEG OFF THE MAT. (Repeat this several times so that the pupil is rocking sideways, balancing on alternate legs.)



TEACHER TIPS	
Teaching Resources	Teaching Strategies
p8; 32	

(Gross motor--balance)

- (8) Have the pupil stand in a narrow space (e.g., between a filing cabinet and a wall) that is only a few inches wider than his body.
- STAND ON ONE FOOT, LIKE THIS.
- (9) Have the pupil stand facing you. Let him hold one end of a short rope, while you hold the other end, tautly.
- STAND ON ONE FOOT, WHILE I COUNT TO FIVE.
- (10) Have the pupil stand sideways on a balance beam, first on the 4-inch width, then on the 2-inch width.
- Reinforcement Activities:
- (1) Repeat content-development activity (10), above. Give the pupil a shopping bag filled with books to hold in one hand, then the other.
- (2) Use the balance beam from content-development activity (10), above. Give the pupil an armload of books, first for one arm, then the other.
- (3) Encourage the pupils to be airplanes, i.e., arms for wings, one foot up, balancing on the other while "flying."
- (4) Show pictures of flamingos in the standing position.
- WHO CAN PRETEND TO BE A FLAMINGO BIRD?

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p8; 36	
p8; 36	



(Gross motor--balance)

Ability and Assessment:

6. To walk the length of a 12-foot walking beam while looking at a target.

With chalk or masking tape, place an X at the pupil's eye level on the wall at the far end of the beam.  
WALK ON THE BEAM. KEEP YOUR EYES ON THE X.

Content-Development Activities:

- (1) Have the pupil straddle the balance beam and move on his hands and knees to an eye level target.
- (2) Have the pupil straddle the balance beam, bend at the knees with hands on hips, and "duck-walk" to an eye level target. If necessary for height clearance, remove the supports and lay the beam directly on the floor.
- (3) Arrange a row of chairs along one side of the beam so their backs form a handrail. Repeat the assessment activity.
- (4) Attach one end of a jump rope to the target. Have the pupil "reel" himself in as he walks toward the target.
- (5) Make a "horse blinder" out of oak tag. Put it on the pupil's head to restrict his peripheral vision as he walks toward the target.

Reinforcement Activities:

- (1) Attach a prize (candy, toy or balloon) to the wall at the pupil's eye level. Set up the walking beam so that it leads to the prize.  
KEEP YOUR EYE ON THE PRIZE AS YOU WALK ON THE BEAM TO GET THE PRIZE.
- (2) Use color discs at the pupil's eye level. Change the color discs while the pupil is walking on the beam.  
WATCH THE COLORS. TELL ME WHAT COLOR YOU SEE NOW . . . NOW . . .

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p8; 36	

GROSS MOTOR--LOCOMOTION AND AGILITY

Ability and Assessment:

6. To jump, making a 180-degree turn.

Mark off a 2x1-foot box on the floor.

STAND IN THE BOX, FACING ME . . . JUMP UP AND TURN AROUND IN THE AIR SO THAT YOU LAND IN THE BOX, FACING THE WALL. (Demonstrate if necessary.)

Content-Development Activities:

(1) Lay the balance beam (or a jump rope) flat on the floor.

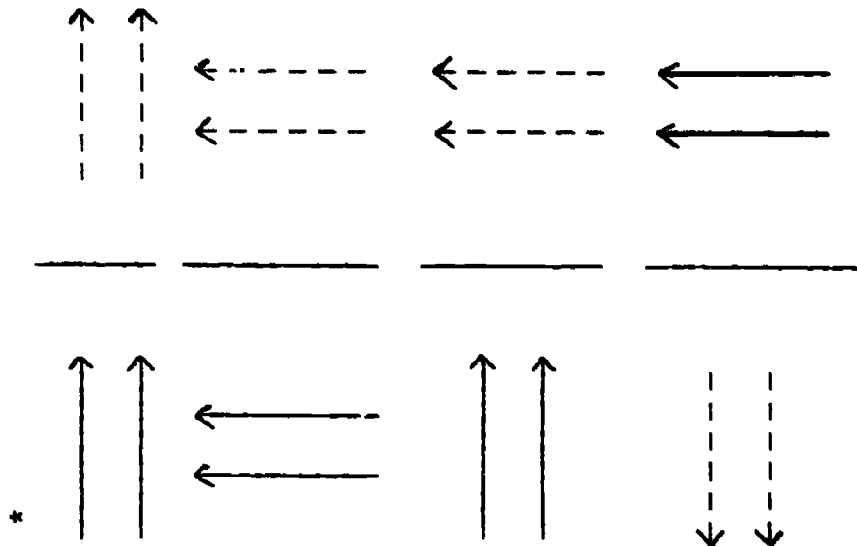
JUMP OVER THE BEAM LIKE THIS (demonstrate). MAKE BOTH FEET JUMP AND LAND AT THE SAME TIME.

(2) STAND BESIDE THE BEAM AND JUMP OVER IT SIDEWAYS, LIKE THIS (demonstrate).

(3) Repeat; have the pupil jump sideways and return several times.

(4) FACE THE ROPE. THIS TIME WHEN YOU JUMP, TURN SO THAT YOU LAND FACING THE WALL LIKE THIS (demonstrate).

(5) NOW JUMP BACK, SO THAT YOU LAND FACING ME, LIKE THIS (demonstrate).

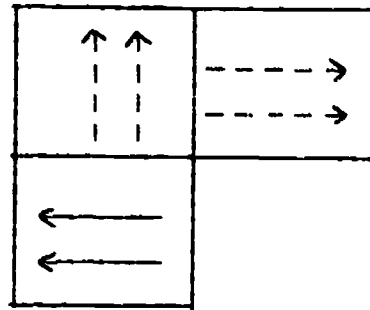


TEACHER TIPS	
Teaching Resources	Teaching Strategies
p8; 36	

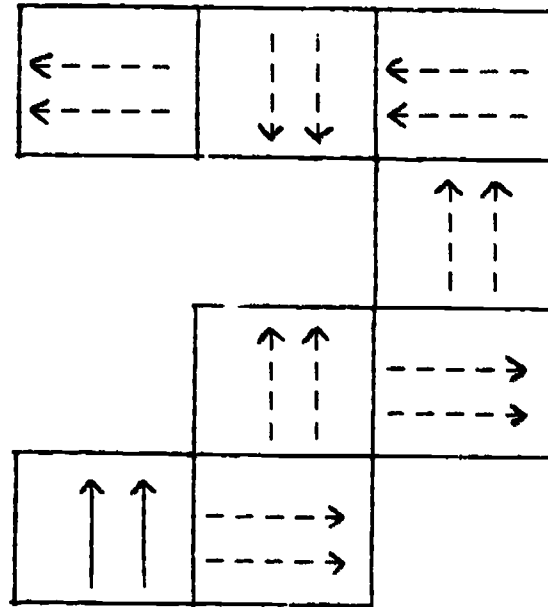
--\*Solid arrows denote starting foot positions.

(Gross motor--locomotion and agility)

- (6) With chalk or masking tape, lay off the following 1-foot boxes on the floor. Solid arrows denote starting foot positions. If you prefer, use solid arrows throughout, and number the boxes. PUT YOUR FEET ON THESE ARROWS. YOUR FEET SHOULD ALWAYS BE POINTING IN THE SAME DIRECTION AS THE ARROWS. LOOK AT THE BOX BESIDE YOU. JUMP AND LAND SO THAT YOUR FEET ARE POINTING IN THE SAME DIRECTION AS THE ARROWS.



# 1.



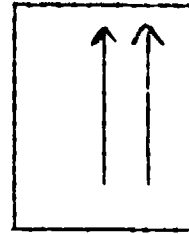
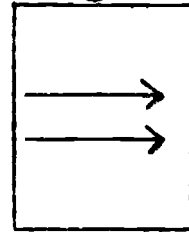
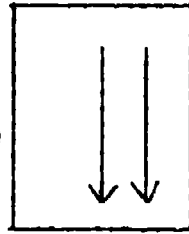
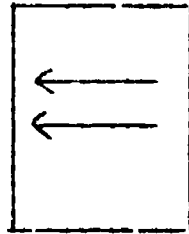
# 2.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

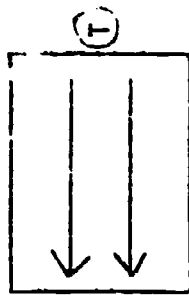
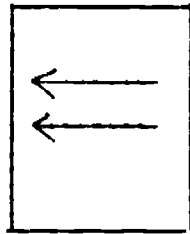
(Gross motor--locomotion and agility)

- (7) PUT YOUR FEET ON THE ARROWS. WHEN YOU JUMP, STAY IN THE SAME BOX. WHEN YOU'RE READY, JUMP AND TURN AROUND SO YOU'LL BE FACING ME.

(T)



- (8) NOW I'M GOING TO STAND BEHIND YOU. WHEN YOU JUMP, TURN SO YOU LAND FACING ME.



Reinforcement Activities:

- (1) Use an appropriate prize (small toy, candy, etc.). Place it in back of the pupil.  
JUMP UP AND TURN AROUND IN THE AIR SO THAT YOU LAND LOOKING AT THE CAR (CANDY, etc.). IF YOU CAN DO THIS, YOU MAY PLAY WITH THE CAR DURING FREE TIME (HAVE THE CANDY, etc.).
- (2) Place a full-length mirror in back of the pupil.  
JUMP AND TURN AROUND IN THE AIR SO THAT YOU LAND LOOKING AT YOURSELF IN THE MIRROR.

p8; 3)

(Gross motor--locomotion and agility)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p>(3) Divide the class into two teams. Draw a 1-foot square on the floor for each pupil so that the two teams have their backs to each other.</p> <p>WHEN I SAY "GO!" JUMP UP IN THE AIR AND TURN AROUND SO THAT YOU ARE FACING THE OTHER TEAM. THE FIRST TEAM THAT JUMPS AROUND, WITHOUT GOING OUTSIDE THE BOXES, GETS A POINT.</p> <p>Repeat the direction to jump, making a 180-degree turn several times to provide ample practice.</p> <p>(4) Repeat the exercise in reinforcement activity (3) above, but do it with individual pupils. Provide as much practice as each pupil needs.</p> <p>Note: Do not force practice. If pupil continues to have difficulty, repeat the content-development activities in varied forms.</p>		

FINE MOTOR SKILLS

Ability and Assessment:

3. To coordinate hand and fingers.

Place one page of a Stars & Stripes newspaper flat on the pupil's desk, one corner pointing toward the pupil. Have the pupil, using one hand only, pick up the corner of the paper and crumple the entire sheet into a ball.

Content-Development Activities:

(1) Give the pupil a lump of clay. Demonstrate, and have him make it flat, using both hands.

NOW TURN YOUR CLAY OVER. SEE HOW SMOOTH THE TOP IS. WATCH HOW I MAKE A PICTURE OF MY HAND.

Demonstrate, pushing your palm and fingers into the clay surface. Use your other hand to push your fingers down.

NOW YOU DO IT. MAKE A PICTURE OF YOUR HAND.

(2) Finger painting. Demonstrate, and allow the pupil to make impressions and patterns with his hands and fingers. Note: Aerosol-type shaving cream on a smooth tabletop is a good initial finger-painting medium. It allows the pupil to "erase" and re-work the "finger paint" many times over.

(3) Sponging. Give the pupil a sponge and a small pan or tray partly filled with water. Demonstrate, and have the pupil soak up water with the sponge and then squeeze the sponge into the sink or another container. Repeat until the original container is empty.

(4) Clay. Give the pupil a lump of clay. Demonstrate, and have the pupil roll it into a ball, and into a cylinder. Have him pull it apart to make balls and cylinders of different sizes. Have him knead and squeeze the clay with his hands and fingers. Allow him to experiment with making figures of animals and people. Note: The object of this activity is not to create a pleasing product, but to help the pupil become aware of what his hands and fingers can do.

(5) Grab bag. Put some small toys or geometric blocks into a bag. Give the pupil one identical object to inspect and feel. Have him reach into the bag and find one just like it.

(6) Circle dotting. Present a worksheet with 1-inch circles. Demonstrate, and have the pupil put a dot in each.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Fine motor skills)

(7) Musical instruments. Use toy musical instruments, or "pretend" instruments, such as trumpet, guitar, piano. Demonstrate, and have the pupil "play" each instrument, using appropriate hand and finger movements.

(8) Turning. Allow the pupil to practice turning doorknobs, and screwing and unscrewing lids on wide-mouth containers, such as a thermos jug or a pickle jar.

Reinforcement Activities:

(1) Play relay races requiring pupils to pick up items such as tennis balls, sponges, etc.

(2) Make shapes and objects out of papier mache.

(3) Have pupils build animals, vehicles, shelters, or other items with clay.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p63

(Fine motor skills)

Ability and Assessment:

4. To coordinate thumb and fingers.

BUTTON YOUR COAT.

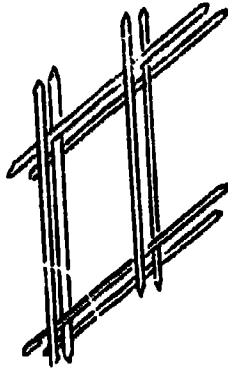
Content-Development Activities:

- (1) Key turning. Allow the pupil to lock and unlock doors of the classroom, cabinets, etc. Begin with the larger skeleton-type keys which are so common in Europe.
- (2) Nail holding. Ask the pupil to hold a nail in an upright position while you hit it with a hammer.
- (3) Finger flicking. Have the pupil "flick" a pingpony ball with his thumb and pointer finger, thumb and middle finger, and thumb and ring finger.
- (4) Screwing. Have the pupil screw large bolts and nuts together. If necessary, immobilize the nut or have someone else hold it so that the pupil need only turn the bolt.
- (5) Picking. Have the pupil pick up small objects such as pegboard pegs or crayon fragments, putting them into a paper cup.
- (6) Clothes pinning. Give the pupil a dozen spring type clothes pins and have him clip them to the edge of a stiff filing folder, or to a taut string.
- (7) Pinning. Have the pupil use pins and tacks to arrange materials on a bulletin board.



Reinforcement Activities:

- (1) Have the pupils make designs on a pegboard with small pegs.
- (2) Play "Tiddly-winks."
- (3) Play "Build a House of Toothpicks." Stack toothpicks, e.g.:



TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p63



(Fine motor skills)

- (4) Play "Jacks." (Pick up jacks only; do n t use ball.)  
(5) Play "Pick-up Sticks."

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p63

VISUAL PERCEPTION

Ability and Assessment:

4. To match objects for color, shape, and size.

Present an array of objects such as the following:

SEE THIS ONE? LOOK OVER HERE AND FIND ONE JUST LIKE IT.



Content-Development Activities:

(1) Present an array of colored blocks that are identical except for color. Give the pupil a red (yellow, blue, etc.) block.

FIND A BLOCK LIKE THIS ONE.

Task Analysis	
Process	Cognition
In: auditory verbal visual nonverbal	perceptual recognition
Out: motor nonverbal	

(2) Present an array of objects that are identical except for size.

FIND ONE JUST LIKE THIS ONE.

(3) Present an array of objects that are identical except for shape.

FIND ONE JUST LIKE THIS ONE.

(4) Present an array of objects which are identical except for color and size (all should be the same shape).

FIND ONE JUST LIKE THIS ONE.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 22, 27	p31

(Visual perception)Reinforcement Activities:

- (1) Repeat the content-development activities using different objects for each activity.
- (2) Play matching games in which three or four teams participate.
- (3) Plan activities for the Learning Center. E.g., tape directions for matching objects for color, size, and/or shape.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Visual perception)

Ability and Assessment:

8. To synthesize a picture from its parts.

Present a picture of a simple object cut into four pieces.

PUT THESE TOGETHER SO THEY'LL MAKE A PICTURE.

Content-Development Activities:

(1) Place a colored picture, 8x4-inches, with a black border, of an orange or other fruit on the pupil's desk. Have the pupil identify the fruit or say, "This is a picture of an apple."

Example:



Leave the model on the desk and present the pupil with a duplicate of the picture cut into two pieces from top to bottom.

PUT THESE TWO PIECES TOGETHER TO MAKE THIS PICTURE.

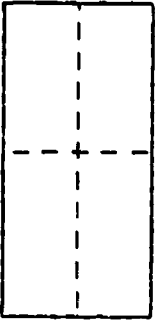
<u>Task Analysis</u>	
<u>Process</u>	<u>Cognition</u>
In: auditory verbal	perceptual
visual nonverbal	awareness
Out: motor nonverbal	

Establish the relationship of parts to whole.

Repeat with other fruit pictures if the pupil is having difficulty.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 22	

(Visual perception)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
<p>(2) Follow the same procedure as in activity (1) above, but use other pictures, such as one of a rabbit, and cut the pictures into two horizontal pieces.</p> <p>(3) Follow the same procedure as in activities (1) and (2) above, but cut the picture into three pieces.</p> <p>(4) Follow the same procedure as in activities (1), (2), and (3) above, but cut the picture into four pieces. I.e.:</p>	
	
<p>(5) Have the pupil assemble the picture parts without the model (uncut picture).</p> <p>(6) When the pupil can assemble the picture parts on the preceding levels, present him with the picture drawn in black outline and cut in three, then four horizontal pieces.</p>	
<p><u>Reinforcement Activities:</u></p> <p>(1) Repeat the content-development activities using other pictures of objects.</p> <p>(2) Tape directions for assembling picture parts. Provide the pupil with two or three pictures cut vertically and/or horizontally in two, three, or four pieces. Use the <u>Learning Center</u> for these activities.</p>	p29 p46

VISUAL MOTOR SKILLS

Ability and Assessment:

10. To copy geometric forms.

On separate sheets of paper, present a 2-inch circle, cross, square, X, rectangle, triangle, and diamond.

LOOK AT THIS CIRCLE. MAKE ONE JUST LIKE IT ON YOUR PAPER. (Repeat with other geometric forms.)

Content-Development Activities:

(1) Provide the pupil with a template of each of the forms listed in the assessment activity above. Each template should have lines of 5 or more inches. Allow the pupil to practice until he has no difficulty keeping the pencil or chalk along the edges of the template.

(2) Provide the pupil with a line drawing of each of the forms listed in the assessment activity above.

DRAW RIGHT OVER THE LINES (present one form at a time).

Task Analysis

Process

Cognition

In: auditory verbal  
visual nonverbal  
Out: motor nonverbal

perceptual  
awareness

(3) Provide line drawings as in activity (2) above, but place tracing paper over each form while the pupil is copying it; then have the pupil look at each and evaluate his reproduction.

(4) Repeat activity (3) above, but provide the pupil with smaller forms.

(5) Repeat assessment activity.

Reinforcement Activities:

(1) Have pupil(s) copy "trails" of geometric forms from models you have made in the snow or gravel on the playground.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Visual motor skills)

- (2) Have pupil(s) construct geometric forms from models you have made. Use rope, building blocks, stones on the playground, or other convenient materials.
- (3) Have pupil(s) hop around large geometric forms you have taped to the floor of the classroom.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p63

(Visual motor skills)

Ability and Assessment:

12. To name a square, circle, triangle, and rectangle.

Present individual shape cards.

TELL ME THE NAME OF THIS.

Task Analysis	
Process	Cognition
In: auditory verbal	perceptual
visual nonverbal	recall
Out: vocal verbal	

Content-Development Activities:

- (1) Repeat content-development and reinforcement activities from ability #10 from this subsection, but require the pupil to name the shape as he traces or copies it.
- (2) Put a large card (approximately 1x1-foot) on the chalkboard, bulletin board, or wall. Ask the class and/or individuals, several times daily, to name the shape on the card. Change the cards weekly until all shapes specified in the assessment activity have been named several times. During the ensuing weeks, put each shape up for only one day.
- (3) Repeat assessment activity.

Reinforcement Activities:

- (1) Present flashcards of squares, circles, triangles, and rectangles in succession. Have the class name each, chorally, as you present them. Increase speed of presentation as class becomes more and more adept at naming the forms.
- (2) Point out items in the environment and ask the pupil(s) what geometric forms make up the items.
- (3) Have pupils draw pictures which include geometric forms. Tell them to make all of the geometric forms with specific colors, e.g., all circles in red, all squares in blue, all triangles in yellow, and all rectangles in green.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 22	p31



## SPATIAL RELATIONSHIPS

Ability and Assessment:5. To relate points in space to each other.

Label objects in the room with numbers or colors.

FIND THE OBJECT WITH NUMBER FOUR (THE RED CIRCLE) ON IT. WALK TO NUMBER THREE. NOW, WALK TO NUMBER ONE, etc.

Content-Development Activities:

(1) Darken the room as much as possible. Give the pupil a flashlight.

SHINE THE FLASHLIGHT ON THE CLOCK. NOW MOVE IT TO THE GLOBE. MOVE IT FROM THE GLOBE TO THE FLAG  
... etc.

If necessary, shine your own flashlight from point to point, and have the pupil imitate with his own flashlight.

(2) Use 6 dominoes, or large rectangular blocks. Place them on end, in a row, spaced so that when the first one is knocked over, a chain reaction will knock all the others over too.

PUSH THE FIRST ONE OVER AND SEE WHAT HAPPENS TO ALL THE OTHERS . . . NOW YOU SET THEM UP SO THEY'LL KNOCK EACH OTHER DOWN.

Task Analysis	
Process	Cognition
In: kinesthetic nonverbal auditory verbal visual nonverbal	perceptual awareness
Out: motor nonverbal	

Use more dominoes or blocks and have the pupil construct more elaborate chain reactions.

(3) Have the pupil construct single-level block designs from pictured patterns. Or, build block designs and have the pupil copy the finished designs.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Spatial relationships)

- (4) Have the pupil construct multi-level block designs, as in activity (3) above.
- (5) Label objects in the room with numbers 1-5.
- START WITH NUMBER ONE, GO TO NUMBER FOUR, NUMBER THREE, etc.
- Reinforcement Activities:
- (1) Repeat the content-development activities using different objects.
- (2) Play "Kick Ball." Have pupils number bases and go around them as in soft ball.
- (3) Have a "treasure hunt" using color clues to take the pupil from one clue to another and finally to the treasure.

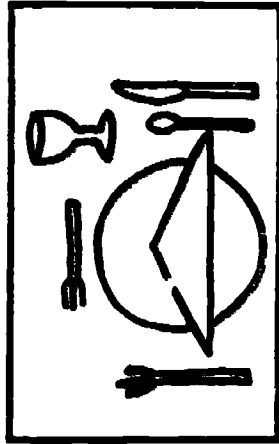
TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p63 p63

(Spatial relationships)

Ability and Assessment:

7. Follow a spatial plan.

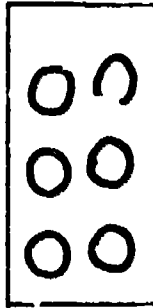
Prepare a diagram of a typical host-nation table setting (see sample). Give the pupil the diagram and the tableware and tell him to arrange the place setting as in the diagram.



Content-Development Activities:

- (1) Present a dittoed sheet with two rows of circles. Give the pupil 6 circle cut-outs and a blank sheet of paper.

Example:



HERE ARE SOME CIRCLES CUT OUT FOR YOU. PLACE THEM ON YOUR SHEET SO THAT THEY WILL LOOK LIKE THIS ONE.

- (2) Present a pegboard, pegs, and a sheet of paper with a simple design.

MAKE YOUR PEGBOARD LOOK JUST LIKE THE ONE OF THE PAPER.

- (3) Make a square design with blocks.

HERE ARE SOME BLOCKS. MAKE YOUR BLOCKS LOOK LIKE MY BLOCKS.

- (4) Present a drawing of a partial place setting, e.g., plate, glass, napkin.

LOOK AT THIS DRAWING. YOU PUT THE PLATE, GLASS, AND NAPKIN ON THE TABLE JUST LIKE THEY ARE IN THE PICTURE.

- (5) Add some silverware to the place setting. Follow the procedure in activity (4). Gradually add other pieces to the place setting.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p31
	p31

---

(Spatial relationships)

(6) Repeat assessment activity.

Reinforcement Activities:

(1) Repeat the preceding content-development activities using different spatial designs.

(2) Prepare designs for pupils to duplicate in the Learning Center.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p46

## AUDITORY SKILLS \*

Ability and Assessment:1. To discriminate among nonverbal sounds.

Have pupils put heads down and raise hands if the same sound is repeated. Play musical instruments, sometimes making the same sound twice and sometimes making two different sounds.

ARE THESE THE SAME SOUNDS OR DIFFERENT SOUNDS?

Content-Development Activities:

(1) Use "sound jars." You can use film canisters, painted baby food jars, etc. Place identical objects in pairs of jars, using five different objects in five pairs of jars.

PICK UP A JAR (CAN) AND SHAKE IT. NOW FIND ANOTHER ONE THAT SOUNDS THE SAME WHEN YOU SHAKE IT. YOU MAY SHAKE THE FIRST ONE AS OFTEN AS YOU LIKE . . . LET'S CHECK TO SEE IF YOU ARE RIGHT, BY LOOKING INSIDE THE JARS.

(2) Hand out a different rhythm band instrument for each student. Keep a set for yourself. Play one instrument (behind your desk where it can't be seen by the students).

WHO CAN MAKE A SOUND LIKE THIS? NOW DO IT.

(3) Prepare a worksheet as below. Make pairs of sounds with rhythm band instruments, out of sight of the students.

HERE'S NUMBER ONE; IF THE SOUNDS ARE THE SAME, CIRCLE THE PICTURES THAT ARE THE SAME. IF THEY'RE DIFFERENT, CIRCLE THE PICTURES THAT ARE DIFFERENT.

1. <input type="checkbox"/>			
2. <input type="checkbox"/>			

\* A major portion of the material in this section was prepared by  
Pearlma Kellogg, Speech Therapist, Torreyon Elementary

TEACHER TIPS	
Teaching Resources	Teaching Strategies

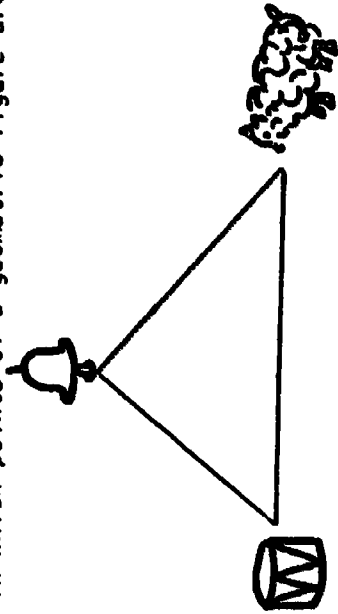
(Auditory skills)

Reinforcement Activities:

(1) Give the pupil pictures of the rhythm band instruments. Play one of the instruments out of sight of the pupil.

WHEN I MAKE THE SOUND, YOU HOLD UP THE PICTURE OF THE INSTRUMENT THAT MAKES THE SOUND.

(2) Use a drawing game in which points of a geometric figure are defined by pictures of sound sources.  
E.g.:



WHEN I MAKE THE SOUND OF TWO OF THESE THINGS, YOU DRAW A LINE BETWEEN THEM.

Make the sound of: drum and then bell, bell and then sheep, etc.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Auditory skills)Ability and Assessment:3. To locate sound sources:

I WILL MAKE SOME NOISES. YOU CLOSE YOUR EYES AND POINT TO WHERE THE NOISES ARE COMING FROM.

Hit a bell or triangle in several parts of the room, e.g., in back of the pupil, to his right, etc.

Task Analysis

<u>Process</u>	<u>Cognition</u>
----------------	------------------

In: auditory nonverbal	perceptual
Out: motor nonverbal	awareness

Content-Development Activities:

(1) Hide a small transistor radio somewhere in the room.

POINT TO WHERE THE MUSIC IS COMING FROM.

(2) Place a small transistor radio in your pocket.

CLOSE YOUR EYES AND POINT TO WHERE THE MUSIC IS COMING FROM. FOLLOW THE MUSIC WITH YOUR FINGER.

(3) Repeat activity (2), with footsteps, furniture being pushed around, etc.

(4) While the pupil's eyes are closed, put the radio in another pupil's pocket, and have that pupil and two others move around the room.

OPEN YOUR EYES AND POINT TO THE PERSON WHO HAS THE RADIO. FOLLOW HIM WITH YOUR FINGER.

(5) Use an audio tape of common household noises (knock on door, water running, vacuum cleaner) and a picture of the inside of a house.

POINT TO THE ROOM IN THE PICTURE WHERE THIS NOISE WOULD MOST LIKELY COME FROM.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29

(Auditory skills)

Reinforcement Activities:

(1) Have a sound source in one part of the room.

CLOSE YOUR EYES. WHEN I TURN THE \_\_\_\_\_ (RADIO) ON, YOU POINT TO WHERE IT IS IN THE ROOM.

(2) Plan a "listening time" activity.

WITH YOUR EYES CLOSED, LISTEN FOR ALL THE SOUNDS AROUND US. (Allow 30 to 45 seconds for "listening.")  
WHO CAN TELL ME TWO SOUNDS AND WHERE THEY WERE?

TEACHER TIPS	
Teaching Resources	Teaching Strategies



(Auditory skills)

Ability and Assessment:

4. To distinguish between levels of sound intensity.

Raise and lower the volume of a radio.

WHEN THE MUSIC GETS LOUD, RAISE YOUR HAND. WHEN IT GETS SOFT, LOWER YOUR HAND.

Content-Development Activities:

(1) Play music on a record or tape. Vary the volume from loud to soft. Tell the pupils to march around the room, rapidly when the music is very loud, and slowly on tip-toe when the music is very soft. (Be certain that they are responding to the auditory cues of the music, and not the visual cues of other children.)

(2) Assemble a group of sound-producing objects such as a drum, a small bead in a glass jar, a large hand bell, a feather, etc.

MAKE A SOUND WITH EACH OF THESE AND THEN PUT THE ONES THAT MAKE LOUD NOISES IN ONE GROUP, AND PUT THE ONES THAT MAKE SOFT NOISES OVER HERE.

Task Analysis	
Process	Cognition
In: visual nonverbal auditory nonverbal Out: motor nonverbal	conceptual awareness

(3) Assemble pictures of sound-producing objects, such as a tiny bell, a jet plane, bowling pins being knocked over, etc.

PUT THE PICTURES OF THINGS THAT MAKE LOUD SOUNDS IN ONE PILE, AND THE PICTURES OF THINGS THAT MAKE SOFT SOUNDS IN ANOTHER PILE.

Task Analysis	
Process	Cognition
In: visual nonverbal Out: motor nonverbal	conceptual recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29
	p29

(Auditory skills)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
<p>(4) Assemble three pictures of objects that make low, medium, and high intensity sounds, such as a bicycle, a car, and a jet plane.</p> <p>PUT THE ONE THAT MAKES THE SOFTEST SOUND HERE, THE ONE THAT MAKES A LOUDER SOUND HERE, AND THE ONE THAT MAKES THE LOUDEST SOUND HERE.</p> <p>(5) Play a tape of a truck approaching from a long distance, passing the listener, and receding into the distance.</p> <p>WHEN THE TRUCK GETS LOUDER, RAISE YOUR HAND AND KEEP UP UNTIL IT STARTS TO GET SOFTER.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Give each pupil a picture of a loudspeaker and a picture of a person whispering in someone's ear. Play a tape recording of sounds at various intensity levels.</p> <p>WHEN YOU HEAR A LOUD SOUND, HOLD UP THIS PICTURE (the loudspeaker). WHEN YOU HEAR A SOFT SOUND, HOLD UP THIS PICTURE (whispering).</p> <p>(2) Make two wall charts, one titled "Loud Sounds Around Us," the other titled "Quiet Sounds Around Us." Each day assist the pupils in making picture entries on either of the charts.</p> <p>WHAT LOUD (QUIET) SOUND(S) DID YOU HEAR TODAY?</p>	<p>p29</p> <p>p29</p> <p>p29</p> <p>p40</p>

## (Auditory skills)

Ability and Assessment:8. To discriminate between words.

Line a ditto sheet into 2 boxes. Number each box in the upper right corner. In the top half of each box draw two circles with a blank line between them. In the bottom half draw a circle and a square with a blank line between them.

LISTEN, I'M GOING TO SAY TWO WORDS. IF THEY ARE THE SAME, PUT A CHECK BETWEEN THE TWO CIRCLES BECAUSE THEY'RE THE SAME, TOO. IF THE WORDS ARE DIFFERENT, PUT A CHECK BETWEEN THE CIRCLE AND THE SQUARE BECAUSE THEY'RE DIFFERENT. LOOK AT BOX #1 AND LISTEN.

Task AnalysisProcessCognition

In: auditory verbal  
visual nonverbal  
Out: motor nonverbal

Content-Development Activities:

(1) Assemble pairs of pictures of objects that produce widely different noises, e.g., a carpenter pounding a nail, water running from a faucet. Make your own recording, in school or at home, of most of these sounds. Present the pictures in pairs, and play one of the sounds.

LISTEN TO THIS SOUND, AND POINT TO THE PICTURE THAT MIGHT BE MAKING IT.

Task AnalysisProcessCognition

In: visual nonverbal  
auditory nonverbal  
Out: motor nonverbal

(2) Rearrange the same pictures into pairs that produce somewhat similar sounds, e.g., pounding a nail, and a woman with high heels walking on a sidewalk. Repeat the same directions as in activity (1) above.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29
	p29

(Auditory skills)

- (3) Regroup the pictures into pairs which require finger discrimination, e.g., a woman talking on the telephone, and two children watching a TV program (record a few seconds of a "soap opera").
- (4) I'M GOING TO SAY THE WORD "BOX" AND I'M GOING TO SAY ANOTHER WORD WITH IT. SOMETIMES THE OTHER WORD WILL BE "BOX" TOO, AND SOMETIMES IT WON'T. WHENEVER YOU HEAR ME SAY "BOX, BOX," RAISE YOUR HAND. BOX, PUMP; BOX, BOX; BOX, CLIP; BOX, BOX; BOX, DUMP; . . .

Reinforcement Activities:

Read the following story and have the pupils make a record of the number of times they hear the word "box," either by itself or as part of another word.

When Joe was 18 he decided he wanted to become a boxer. He put his clothes in a box and mailed them to the New York Boxing Arena. He rode to New York in a box car with his dog, Sarge, who was a boxer too. On the way he ate a box lunch which he shared with his boxer, Sarge. When he arrived in New York, he bought a pair of boxing gloves and went to the boxing arena. When he got there he stopped at the box office to ask directions. He saw a sign that read, "Box Seats, \$10." The man in the box office told him to go inside.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Auditory skills)

Ability and Assessment:

9. To recognize a given sound in words.

Tell the pupil to close his eyes.

I AM GOING TO SAY A WORD. IF THE WORD HAS THE "S" SOUND, THEN RAISE YOUR HAND. (Use any sound.)

Say the words--ball, sun, cat, house, present, chair, whistle, etc.

Content-Development Activities:

(1) LISTEN TO THE SOUND I MAKE: (say the sound of "s"). LISTEN WHILE I MAKE IT AGAIN. NOW CLOSE YOUR EYES; CLAP YOUR HANDS WHENEVER YOU HEAR IT IN WHAT I SAY: LA, MA, SA, FA, GA, etc. (Repeat for final position: OOM, OOT, OOK, OOS, OOG and medial position: ISI, IMI, IBI, etc.)

(2) Give the student a drum and a drum stick (hit desk with drum stick if drum is not available).

LISTEN TO THE SOUND I MAKE (say the sound of "s"). WHENEVER YOU HEAR THIS SOUND, TAP YOUR DRUM. (Make sounds of "s, f, v, m, s, z, f, s.")

(3) Use the procedure in activity (2) above.

LISTEN FOR THE "S" SOUND IN THE WORDS I WILL SAY. WHEN YOU HEAR THE "S" SOUND, TAP YOUR DRUM.

Note: Use the format in activities (1)-(3) above with any vowel or consonant sound.

Reinforcement Activities:

(1) Use a tape recording of a consonant sound, several words which contain the sound, and also words which do not contain the sound.

LISTEN TO THE SOUND I MAKE. EACH TIME YOU HEAR THAT SOUND IN A WORD PUT A MARK ON YOUR PAPER.

(2) Use pictures of things the names of which contain the sound being taught.

I AM GOING ON A TRIP. EVERYTHING IN MY SUITCASE HAS TO HAVE THE "F" SOUND IN IT. I WILL SAY THE NAME OF SOMETHING IN ONE OF THE PICTURES. IF IT HAS THE "F" SOUND IN IT, TELL ME TO PUT IT IN MY SUITCASE.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29

(Auditory skills)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p><u>Ability and Assessment:</u></p> <p>16. <u>To reproduce a verbal sound pattern.</u></p> <p>I AM GOING TO SAY SOMETHING. LISTEN, BECAUSE I WANT YOU TO SAY IT THE SAME WAY: (1) "THE CAR WILL STOP." (2) "HERE IS YOUR CANDY." (3) "MY HANDS ARE DIRTY."</p> <p><u>Content-Development Activities:</u></p> <p>(1) Have students repeat nonsense syllables after you say them (e.g., fa ma ra; ri si me; oom oot ood).</p> <p>(2) Present pictures (house, ball), and say a sentence of four single-syllable words about each (e.g., The house is green.).</p> <p>LOOK AT THIS PICTURE AND LISTEN. NOW YOU SAY WHAT I JUST SAID ABOUT THE PICTURE.</p> <p>(3) Have students repeat sentences as above, minus the picture stimuli.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Make a tape recording of familiar short sentences. Leave space between each sentence for a response. LISTEN TO THE WORDS ON THE TAPE. MAKE YOUR WORDS SOUND LIKE THE WORDS ON THE TAPE.</p> <p>(2) Play a game. Divide the class into pairs. Give one message to one person on each team. I WILL GIVE YOU A MESSAGE. WALTER, YOU SAY IT THE WAY I SAY IT. NOW, GIVE THE MESSAGE TO MARGARET. Continue with other teams.</p>		<p>p29</p> <p>p29</p> <p>p63</p>

## (Auditory skills)

Ability and Assessment:17. To identify words by blending their syllables.

LISTEN TO THESE WORDS, AS I GIVE THEM IN PARTS. THEN TELL ME THE WHOLE WORD: (1) SHOE, (2) TA-BLE, (3) E-RA-SER, (4) BI-CY-CLE, (5) RE-FRIG-ER-A-TOR.

Content-Development Activities:

(1) Have two students face each other at opposite sides of the room. Whisper the first syllable of a two-syllable word in the ear of one, and the second syllable in the ear of the other. Tell them to walk toward each other, alternately saying their syllables. The rest of the class (or a third student) is to listen to the syllables and then say the complete word.

(2) Say a sentence to a pupil in which one word has to be blended. E.g., I like to eat can-dy.

WHO CAN REPEAT THE SENTENCE BACK?

(3) Have five pictures displayed. As the teacher says the name of a picture in syllables the pupil points to the picture and says the word. Follow this procedure with all of the pictures. Use grossly different pictures to give maximum aid in blending what is heard.

(4) Hold up a picture of an object and say the object's name in syllables. Draw a box for every syllable. Have pupils draw their own boxes to correspond with the syllables of other objects' names.

(5) Have pictures of objects whose names contain one to three syllables. Pupils stand in line and choose a picture. They say the name of the picture. If the name has one syllable, then they take one step. The number of steps depends on the number of syllables in the name.

(6) LISTEN TO THESE WORDS: HELP--HELPING. WHICH IS LONGER? (Ask pupils different paired words. If necessary, clap out syllables.)

(7) Have pupils tap on a drum the number of syllables in a word. The teacher may need to demonstrate at first.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29
	p29
	p29

(Auditory skills)Reinforcement Activities:

(1) Say a series of polysyllabic words.

CLAP YOUR HANDS FOR EACH PART OF THESE WORDS.

(2) Give pupils blocks. Say a series of polysyllabic words, one word at a time.

PUT ONE BLOCK ON ANOTHER ONE EACH TIME I SAY A PART OF A WORD.

TEACHER TIPS	
Teaching Resources	Teaching Strategies



## LANGUAGE DEVELOPMENT

INTRODUCTION

In this section language development is organized around two central questions: (1) Receptive language-- does the student understand what he hears others saying to him? (2) Expressive language-- is the student able to effectively communicate his thoughts to others?

A dichotomy such as this is artificial, as every language task is an interrelationship of both components; however, it trains the student to focus on each component to develop his skills in listening and speaking to others.

The language tasks in this section are presented in parallel. That is, each task is first stated from a receptive viewpoint, and then re-stated from an expressive viewpoint. Obviously, they overlap. The receptive tasks feature receptive verbal language demands, but will often require the student to make a nonverbal response ("Point," "Show me"). The expressive tasks feature expressive verbal language demands, but will often be based on the reception of nonverbal information such as a picture or a real object. The tasks were designed in this way to allow the teacher to concentrate on the questions listed in the first paragraph of this Introduction.

The skill areas which appear here are representative samples of the cognitive territory in which language competence must be acquired. In this section of the guide they should be viewed as means to an end: language development. In other sections of the guide they are presented more completely and as ends in themselves.

ABILITIES AND ASSESSMENTS

SKILL AREA	TEACHER TIPS	
	Suggested Activities	Teaching Resources Teaching Strategies
RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE	
1. Names of people, objects, events	<p>To recognize a named object, person or event.</p> <p>Present a picture of a boy or a girl.</p> <p>POINT TO THE BOY'S NOSE.</p>	<p>To identify an object, person or event.</p> <p>Present a picture of a boy or girl, and point to the head.</p> <p>TELL ME WHAT THIS IS.</p>
2. Functions of people, objects, events	<p>To recognize the named function of an object, person or event.</p> <p>Present a picture of the lobby of an AFMPS movie theatre.</p> <p>POINT TO THE PERSON WHO SELLS YOU YOUR TICKET.</p>	<p>To describe the function of an object, person or event.</p> <p>TELL ME WHAT THIS PERSON (ticket seller) DOES.</p>
3. Descriptions of people, objects or events	<p>To recognize an object, person or event described in two or more dimensions.</p> <p>Present a picture of the inside of a commissary.</p> <p>POINT TO WHERE THE FROZEN FOOD IS KEPT.</p>	<p>To describe an object, person or event in two or more dimensions.</p> <p>Point to a frozen food bin.</p> <p>TELL ME WHAT YOU CAN GET IN HERE.</p>
	92	p7; 28a,b p8; 28c,d p63
	94	p7; 28a,b p8; 28c,d p80
		p7; 28a,b p8; 28c,d p63

## (Abilities and assessments)

SKILL AREA	RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE	TEACHER TIPS		
			Suggested Activities	Teaching Resources	Teaching Strategies
4. Matching	<p><u>To match an object, person or event.</u></p> <p>Present a cup, a shoe, a spoon and a boot. Point to the shoe.</p> <p>SHOW ME THE ONE THAT LOOKS MOST LIKE THE SHOE.</p>	<p><u>To name a matching object, person or event.</u></p> <p>TELL ME WHICH ONE IS MOST LIKE THE SHOE.</p>	97	p7; 28a,b p8; 28c,d	p63
5. Categorizing	<p><u>To sort objects according to specified criteria.</u></p> <p>Present a shoe, cup, hat, spoon, sock, necktie, book, and scarf.</p> <p>SHOW ME THE ONES THAT WE MIGHT WEAR.</p>	<p><u>To describe criteria for classifying a set of objects, people or events.</u></p> <p>I'M GOING TO PUT THE SHOE, HAT, SOCK, NECKTIE, AND SCARF INTO A SEPARATE GROUP. TELL ME HOW THEY ARE ALL ALIKE.</p>		p7; 28a,b p8; 28c,d	p63
6. Quantitative skills	<p><u>To recognize a set of quantitative specifications.</u></p> <p>Present a set of 5 books, a set of 6 books, and a set of 7 books.</p> <p>SHOW ME THE SET OF SIX BOOKS.</p>	<p><u>To respond vocally to a quantitative task.</u></p> <p>TELL ME HOW THIS (6) SET IS DIFFERENT FROM THE OTHER SETS.</p>		p7; 28a,b p8; 28c,d	p63
7. Directions	<p><u>To follow a set of spoken directions.</u></p> <p>GO TO THE BULLETIN BOARD. TAKE DOWN THE PICTURES OF THE RABBIT, THE DOG, AND THE GOAT, AND BRING THEM TO ME.</p>	<p><u>To give directions vocally.</u></p> <p>TELL US WHAT WE ARE TO DO WHEN THE FIRE ALARM BELL RINGS.</p>		p7; 28a,b p8; 28c,d	p63 p80

(Abilities and assessments)

SKILL AREA	TEACHER TIPS	
	Suggested Activities	Teaching Resources Teaching Strategies
8. Spatial awareness	<p>RECEPTIVE LANGUAGE</p> <p><u>To recognize spatial specifications.</u></p> <p>Present a picture of a family living room.</p> <p>POINT TO THE LAMP THAT IS BESIDE THE CHAIR.</p> <p>EXPRESSIVE LANGUAGE</p> <p><u>To describe spatial relationships.</u></p> <p>TELL ME WHERE EACH LAMP IS.</p>	<p>p7; 28a,b p8; 28c,d</p>
9. Temporal awareness	<p><u>To respond to a temporal demand.</u></p> <p>Present two pictures of events from markedly different time periods (e.g., a wagon train crossing the prairie, and vehicles moving on a modern superhighway).</p> <p>WHICH ONE SHOWS HOW PEOPLE TRAVELED A LONG TIME AGO?</p>	<p>99</p> <p>p7; 28a,b p8; 28c,d</p> <p>p63</p>
10. Rhyme	<p><u>To recognize rhyming words.</u></p> <p>EACH TIME YOU HEAR TWO WORDS THAT RHYME, CLAP YOUR HANDS: TEACH--BEACH, TALK--SEE, HILL--WILL, etc.</p>	<p>p7; 28a,b p8; 28c,d</p> <p>p63</p>
11. Semantics (Vocabulary)	<p><u>To recognize the meanings of words.</u></p> <p>LISTEN. AFTER EACH THING I SAY, SHOW ME HOW YOU WOULD LOOK, OR WHAT YOU WOULD DO IF WHAT I SAID WAS TRUE. THAT PICTURE IS VERY FUNNY. THAT MEAT SMELLS FUNNY. PUT THE COVER OVER THE PAPERS. BRING THE COVER OVER HERE.</p>	<p>p7; 28a,b p8; 28c,d</p>

To use words appropriate to the meaning intended by the speaker (student).

Present pictures of dentists working on patients.

PUT IN THE MISSING WORD: LOOK, THIS BOY IS HAVING A TOOTH FILLED. THIS BOY IS GETTING HIS \_\_\_\_\_ CLEANED. THIS BOY HAS BOTH FEET ON THE FLOOR, BUT THIS BOY HAS ONLY ONE \_\_\_\_\_ ON THE FLOOR.

(Abilities and assessments)

SKILL AREA	RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE	TEACHER TIPS		
			Suggested Activities	Teaching Resources	Teaching Strategies
12. Syntax	<p>To <u>recognize appropriate word order.</u></p> <p>RAISE YOUR HAND WHEN YOU HEAR ME SAY A SENTENCE IN WHICH THE WORDS ARE MIXED UP: CATCH THE RED BALL BIG. RUN AFTER THE LITTLE BOY. THE CAT IS UP THE TREE IN.</p>	<p>To <u>form a sentence with syntactical integrity.</u></p> <p>Present a picture of a cat in a tree. Beside the picture print the words: The tree in cat is up a</p> <p>LOOK AT THE PICTURE; NOW LOOK AT THE WORDS WHILE I READ THEM TO YOU . . . NOW USE THESE WORDS TO TELL ABOUT THE PICTURE. I'LL READ THE WORDS AGAIN IF YOU WANT ME TO.</p>	100	<p>p7; 28a,b p8; 28c,d</p>	p63

LANGUAGE DEVELOPMENT

Ability and Assessment:		TEACHER TIPS	
SKILL AREA	RECEPTIVE LANGUAGE	Teaching Resources	Teaching Strategies
1. Names of people, objects, events	<p><u>To recognize a named object, person or event.</u></p> <p>Present a picture of a boy or girl.</p> <p>POINT TO THE BOY'S NOSE.</p>	<p>p7; 28a,b p3; 28c,d</p>	
<u>Content-Development Activities:</u>			
(1) Present the PLDK* manikin or a paper doll manikin of a boy or girl.			
POINT TO THE BOY'S HEAD (EYES, NOSE, etc.).		p7; 28a	p63
(2) Work with individual child or with 2 or 3 children at one time. Have them sit facing a large mirror.		p8; 31	
<p>SEE, IN THE MIRROR, THIS IS YOUR ELBOW. PUT YOUR HAND ON IT.</p> <p>WHO DO YOU SEE IN THE MIRROR? . . . THAT'S RIGHT, IT'S YOUR DANNY.</p> <p>Point (do not touch) to body parts and have him name them, using the pattern "This is my _____."</p> <p>If necessary, prompt him by taking his hand and putting it on the correct body part.</p>			
(3) Seat children in front of large mirror. Have them touch named body parts, given only verbal directions.			
(4) Same as preceding activity, but without the mirror.			

\*PLDK = Prebody Language Development Kit

(Language development)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE
(5) Seat 3 or 4 children in a small circle so they can see each other.	NOW TELL US WHAT YOU'RE POINTING TO. Have child use the pattern: "These are Brenda's hands."
(6) Present dolls, manikins, and pictures of people.	Point to parts of dolls, pictures, etc. TELL ME WHAT THIS IS.
SHOW ME THE DOLL . . . NOW SHOW ME HER HAIR . . . NOSE . . . etc. FIND THE PICTURE OF THE MAN. POINT TO HIS CHEST . . .	
<u>Reinforcement Activities:</u>	
(1) Do "Hokey Pokey" without distinguishing right and left.	
(2) Sing "Put Your Finger in the Air."	
(3) Play "Simon Says," but <u>do not</u> attempt to "trick" them by omitting the "Simon Says."	
(4) Lay child on large sheet of paper. Trace the outline of his body. Cut it out, hang it up, and have him point to parts of his body named by you; and have him name parts of the body pointed to by you.	
(5) Selected Peabody Language Development Kit activities.	
Level #1, Lessons 16-1, 19-2, 42-4, 61-3, 65-4	Lessons 5-1, 22-2, 34-1, 52-1, 68-1, 68-2
Level #1, Lessons 1-4, 12-1, 28-1, 34-2, 84-1, 121-2	Lessons 3-3, 8-1, 14-3, 30-3
Level #2, Lessons 38-3 Level #3, Lessons 3-3	Lessons 88-1 Lessons 1-3, 2-1, 4-1
	p7; 28a p7, 28b p8; 28c p8; 28d

(Language development)

Ability and Assessment:		TEACHER TIPS	
SKILL AREA	RECEPTIVE LANGUAGE	Teaching Resources	Teaching Strategies
2. Functions of people, objects, events	<u>To recognize the named function of an object, person or event.</u>	p7; 28a-b p8; 28c,d	p80
	<u>Present a picture of the lobby of an AAFMPS movie theatre.</u>		
<u>POINT TO THE PERSON WHO SELLS YOU YOUR TICKET.</u>			
<u>Content-Development Activities:</u>			
(1) Present a picture of an AAFMPS movie theatre lobby.			
SHOW ME WHERE YOU BUY YOUR TICKETS . . . POPCORN. . . COKE . . .		<u>Task Analysis</u> <u>Process</u> In: visual nonverbal auditory verbal Out: motor nonverbal  <u>Cognition</u> conceptual recognition	
WHAT DOES THIS GIRL DO? (Sells popcorn.) WHAT DOES THIS MAN DO? (Takes tickets.)		<u>Task Analysis</u> <u>Process</u> In: visual nonverbal auditory verbal Out: vocal verbal  <u>Cognition</u> conceptual recognition	
Repeat the above, but without the picture. WHERE YOU GO TO THE MOVIES, WHERE DO YOU GET YOUR POPCORN?		<u>Task Analysis</u> <u>Process</u> In: auditory verbal Out: vocal verbal  <u>Cognition</u> conceptual recall	



(Language development)

RECEPTIVE LANGUAGE		EXPRESSIVE LANGUAGE		TEACHER TIPS	
				Teaching Resources	Teaching Strategies
(2) Set up a small simulated PX or BX in your classroom.		TELL US WHAT YOU COULD BUY THAT WOULD HELP MOTHER COOK DINNER (pan, spoon, etc.).			p80
BUY SOMETHING TO KEEP YOUR HEAD WARM (hat). BUY SOMETHING TO PUT ON YOUR FEET (shoes, socks).					
(3) Partly fill a grab bag with some common objects.					
FEEL AROUND IN THE BAG AND PULL OUT SOMETHING TO EAT WITH (spoon).		FEEL AND FIND SOMETHING ELSE, AND TELL US WHAT IT'S USED FOR BEFORE YOU PULL IT OUT.			

Reinforcement Activities:

(1) While putting up a bulletin board related to some part of your program, give children opportunities to recognize and to describe the functions of objects related to it.

GIVE ME SOMETHING TO HOLD THESE PAPERS UP ON THE BULLETIN BOARD. TELL US WHAT THESE CUT-OUT LETTERS CAN BE USED FOR.

(2) Repeat the above during "World of Work" activities.

POINT TO THE MAN WHO PUTS GAS AND OIL INTO DAD'S CAR. TELL US WHAT THIS MP DOES AT THE SCHOOL CROSSING.

(Language development:)

(3) Selected Peabody Language Development Kit activities:

RECEPTIVE LANGUAGE

- Level #P. Lessons 12-3, 16-1, 20-3, 26-3, 34-3, 36-1, 38-3, 88-3, 129-1
- Level #1, Lessons 8-2, 42-1, 152-2
- Level #2, Lessons 37-3, 123-1
- Level #3, Lessons 4-3, 67-2

EXPRESSIVE LANGUAGE

- Lessons 20-3, 21-3, 40-3, 42-2
- Lessons 5-2, 136-1, 138-1, 144-2
- Lessons 10-3, 32-2, 88-1
- Lessons 12-1

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 28a	
p7; 28b p8; 28c p8; 28d	

## (Language development)

Ability and Assessment:

## SKILL AREA

## RECEPTIVE LANGUAGE

## EXPRESSIVE LANGUAGE

## 5. Categorizing

To sort objects according to specified criteria.

To describe criteria for classifying a set of objects, people or events.

Present a shoe, cup, hat, spoon, sock, necktie, book and scarf.

SHOW ME THE ONES THAT WE MIGHT WEAR.

I'M GOING TO PUT THE SHOE, HAT, SOCK, NECKTIE, AND SCARF INTO A SEPARATE GROUP. TELL ME HOW THEY ARE ALL ALIKE.

Content-Development Activities:

(1) Present SAPA\*/Part A, Exercise d (Classifying 1), which requires children to sort leaves.

GO TO THE BOARD AND TACK YOUR LEAF UNDER THE ONE THAT LOOKS THE MOST LIKE IT.

Point to a group of leaves which are alike in terms of color or shape or size.

TELL US HOW THESE LEAVES ARE ALL ALIKE.

(2) Present SAPA\*/Part A, Exercise s (Classifying 2), which requires the children to deal with objects of differing colors, shapes, and sizes. Cut a hole in the top of a shoebox, as described in the exercise booklet.

FIND ALL THE THINGS THAT WILL FIT THROUGH THE HOLE.

After all of the objects which will fit through the hole are in the box, take off the cover and say TELL US HOW ALL THE THINGS INSIDE THE BOX ARE DIFFERENT FROM THE THINGS THAT ARE STILL ON THE TABLE.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
p7; 28a,b p8; 28c,d	p63	
p20; 27b		
p20; 27b		

\*SAPA = Science--A Process Approach (AAAS)

(Language development)

TEACHER TIPS		
Teaching Resources	Teaching Strategies	

## (Language development)

Ability and Assessment:

SKILL AREA	RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE
9. Temporal awareness	<p><u>To respond to a temporal demand.</u></p> <p>Present two pictures of events from markedly different time periods (e.g., a wagon train crossing the prairie, and vehicles moving on a modern superhighway).</p> <p>WHICH ONE SHOWS HOW PEOPLE TRAVELED A LONG TIME AGO?</p>	<p><u>To give temporal information.</u></p> <p>LOOK AT THE WAGON TRAIN. WOULD YOU SAY "THESE PEOPLE LIVED LONG AGO," OR "THESE PEOPLE ARE LIVING TODAY"?</p>

Content-Development Activities:

- (1) Post the children's work papers on the bulletin board every day for a week.
- BRING ME THE MATH PAPER YOU DID YESTERDAY.
- (2) Post all of one day's work papers on the bulletin board.
- SHOW ME A PAPER YOU DID BEFORE LUNCH.
- BRING ME ONE OF YOUR PAPERS AND TELL ME WHETHER YOU DID IT BEFORE LUNCH OR AFTER LUNCH.

Reinforcement Activities:Selected Peabody Language Development Kit activities:

Level #P, Lessons 109-4, 170-4, 175-183	Lessons 175-1
Level #1, Lessons 96-3	Lessons 96-3
Level #2,	Lessons 40-2, 66-3, 152-3, 156-3
Level #3, Lessons 23-2, 24-3	Lessons 23-1, 23-2, 115-3, 129-3

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 28a,b p8; 28c,d	p63

(Language development)

Ability and Assessment:

SKILL AREA

12. Syntax  
(Word Order)

RECEPTIVE LANGUAGE

To recognize appropriate word order.

RAISE YOUR HAND WHEN YOU HEAR ME SAY  
A SENTENCE IN WHICH THE WORDS ARE  
MIXED UP:  
CATCH THE RED BALL BIG.  
RUN AFTER THE LITTLE BOY.  
THE CAT IS UP THE TREE IN.

EXPRESSIVE LANGUAGE

To form a sentence with syntactical  
integrity.

Present a picture of a cat in a tree.  
Beside the picture print the words: The  
tree in cat is up a.  
  
LOOK AT THE PICTURE; NOW, LOOK AT THE WORDS  
WHILE I READ THEM TO YOU . . . NOW USE  
THESE WORDS TO TELL ABOUT THE PICTURE.  
I'LL READ THE WORDS AGAIN IF YOU WANT ME TO.

Content-Development Activities:

(1) Use the following examples as incidental to any activity in the classroom:

LOOK AT EVERYONE WORKING, KENNY.  
AS I POINT TO A BOY OR GIRL AND SAY  
SOMETHING, I WANT YOU TO SAY WHAT I SAY:  
BOBBY IS PAINTING.  
DEBBIE IS PAINTING.  
STERLING IS PAINTING.

LOOK AROUND THE ROOM AND TELL ME WHO IS  
PAINTING. SAY, " \_\_\_\_\_ IS PAINTING."

Task Analysis

Process

In: auditory verbal  
visual nonverbal  
Out: vocal verbal

Cognition

perceptual  
awareness

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 28a,b p8; 28c,d	

(Language development)

TEACHER TIPS																	
Teaching Resources	Teaching Strategies																
<p>RECEPTIVE LANGUAGE</p> <p>(2) In the same setting, increase the difficulty of the language tasks.</p> <p>POINT TO THE PERSON I'M TALKING ABOUT. THE GIRL WHO IS PAINTING. THE BOY WHO IS CUTTING. THE GIRL WHO IS PASTING.</p> <p>EXPRESSIVE LANGUAGE</p> <p>LOOK AROUND THE ROOM SO YOU CAN FINISH WHAT I'M SAYING: KAREN IS _____ KEITH IS _____ LEONA IS _____</p> <p>Task Analysis</p> <table> <tr> <th>Process</th><th>Cognition</th></tr> <tr> <td>In: auditory verbal</td><td>conceptual</td></tr> <tr> <td>visual nonverbal</td><td>recognition</td></tr> <tr> <td>Out: motor nonverbal</td><td></td></tr> </table> <p>(3) Repeat during this and other classroom activities, using other common sentence structural frames, e.g., THERE IS A BALL. THERE IS A TREE. THERE IS A TRUCK. THERE ARE TWO BALLS. THERE ARE TWO TREES. THERE ARE TWO TRUCKS.</p> <p>If necessary with any of the foregoing, add cues by tapping out cadence and inflectional patterns with your finger as you say a sentence, and as the child says it.</p> <p><u>Reinforcement Activities:</u></p> <p>Selected Peabody Language Development Kit activities:</p> <table> <tr> <td>Level #P</td><td>Lessons 4-1, 5-1, 6-1, 11-1, 11-3, 14-2. 24-1, 25-3, 31-1, 37-1, 71-2</td></tr> <tr> <td>Level #1</td><td>Lessons 6-3, 17-2, 43-2</td></tr> <tr> <td>Level #2, Lessons 72-2, 172-3</td><td>Lessons 49-1, 50-1, 81-1, 103-3, 130-1, 131-3</td></tr> <tr> <td>Level #3, Lessons 51-3, 133-2</td><td>Lessons 60-2</td></tr> </table>	Process	Cognition	In: auditory verbal	conceptual	visual nonverbal	recognition	Out: motor nonverbal		Level #P	Lessons 4-1, 5-1, 6-1, 11-1, 11-3, 14-2. 24-1, 25-3, 31-1, 37-1, 71-2	Level #1	Lessons 6-3, 17-2, 43-2	Level #2, Lessons 72-2, 172-3	Lessons 49-1, 50-1, 81-1, 103-3, 130-1, 131-3	Level #3, Lessons 51-3, 133-2	Lessons 60-2	<p>p7; 29a</p> <p>p7; 28b</p> <p>p8; 28c</p> <p>p8; 28d</p>
Process	Cognition																
In: auditory verbal	conceptual																
visual nonverbal	recognition																
Out: motor nonverbal																	
Level #P	Lessons 4-1, 5-1, 6-1, 11-1, 11-3, 14-2. 24-1, 25-3, 31-1, 37-1, 71-2																
Level #1	Lessons 6-3, 17-2, 43-2																
Level #2, Lessons 72-2, 172-3	Lessons 49-1, 50-1, 81-1, 103-3, 130-1, 131-3																
Level #3, Lessons 51-3, 133-2	Lessons 60-2																

# ABILITY ATTAINMENT FORM

The Ability Attainment Form is to be used as a record of the pupil's progress. The subheadings from each section of the guide are listed in the vertical column on the left side of the page. The number for each ability that is within the subsection is placed in a row of boxes beside the subheading title. Next to each ability number is an open space. As the pupil masters each ability, the teacher should circle the corresponding ability number and enter the date in the open space. A space for comments is at the right side of the page where narrative comments about any ability or a group of abilities may be entered.

This form provides information that the teacher should use to write periodic pupil progress reports. By transposing the ability numbers on the attainment form to a narrative description of the pupil's behavior as he has attained those abilities, the teacher can generate a meaningful description of the pupil's progress.

When the pupil transfers to a school outside of the USDESEA system, the narrative progress report from this form will be sent as a part of the pupil's record.



**ABILITY ATTAINMENT FORM**

NAME \_\_\_\_\_

## COMMENTS

PRE-ACADEMIC ABILITIES									
	*	**							
Body Image & Position in Space	1	2	3	4	5	6	7	8	9 10
Gross Motor	11	12	13	14	15				
Balance	1	2	3	4	5	6	7	8	9
Agility	1	2	3	4	5	6			
Locomotion & Agility	1	2	3	4	5	6	7		
Fine Motor	1	2	3	4	5				
Visual Perception	1	2	3	4	5	6	7	8	9 10
Visual Motor	1	2	3	4	5	6	7	8	9 10
Spatial Relationships	1	2	3	4	5	6	7		
Auditory Perception	1	2	3	4	5	6	7	8	9 10
Language Development	11	12	13	14	15	16	17		
	1R	1E	2R	2E	3R	3E	4R	4E	5R 5E
	6R	6E	7R	7E	8R	8E	9R	9E	10R 10E
	11R	11E	12R	12E					

\*This space is for the ability number. Circle the number when the child has performed the ability successfully.

\*\*\*This space is provided so that you may record the date when the pupil achieved the ability.

(Ability Attainment Form)

NAME																COMMENTS	
READING ABILITIES																	
Basic Sight Vocabulary	1		2		3		4		5								
Letters of the Alphabet	1		2		3		4		5		6						
Word Attack Skills																	
A. Word Config. Clues	1																
B. Contextual Clues	1		2														
C. Structural Analysis	1		2		3		4		5		6		7		8		10
	11																
D. Phonic Analysis	1		2		3		4		5		6		7		8		10
	11		12		13		14										
Comprehension	1		2		3		4		5		6		7		8		10
	11		12														
HANDWRITING AND SPELLING ABILITIES																	
Manuscript Writing	1		2		3		4		5		6		7		8		10
	11		12		13		14		15		16		17		18		20
	21		22														
Dictionary Usage	1		2		3		4		5								
Cursive Writing	1		2		3		4		5		6		7		8		10

## COMMENTS

NAME \_\_\_\_\_

(Ability Attainment Form)

NAME	21	22	23	24	25	26	27	28	29	30	COMMENTS
(Money, continued)	21	22	23	24	25	26	27	28	29	30	
	31	32	33	34	35	36					
SCIENCE ABILITIES											
Human Body	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
Health	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19		
Animals	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16					
Plants	1	2	3	4	5	6	7	8	9	10	
	11	12	13								
Weather and Climate	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14							
Safety	1	2	3	4	5	6	7	8	9	10	
	11	12	13								
Environment	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17				

(Ability Attainment Form)

NAME \_\_\_\_\_

COMMENTS

	1	2	3	4	5	6	7	8	9	10	
Earth and Space	11	12	13								
Technology	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22									
PERSONAL - SOCIAL ABILITIES											
Self-Awareness	1	2	3	4	5	6	7	8	9	10	
	11	12									
Self and the Environment	1	2	3	4	5	6	7				
Communications	1	2	3	4	5	6	7	8			
Self and Emotions	1	2	3	4	5	6	7	8			
Interpersonal Relationships	1	2	3	4	5	6	7	8	9		
Self-Assistance	1	2	3	4	5	6	7	8	9	10	
	11										
Traveling	1	2	3	4	5	6	7				
WORLD OF WORK ABILITIES											
Level I	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15						

[illegible]

AN ANNOTATED SELECTED BIBLIOGRAPHY

Anderson, R.M., Hemenway, R.E., & Anjerson, J.W. Instructional resources for teachers of the culturally disadvantaged and exceptional. Springfield, Ill.: Charles C. Thomas, 1969.

This handbook has sections for each of the academic areas and provides information on numerous valuable sources of ideas and techniques for the special education teacher.

Bangs, T.E. Language and learning disorders of the pre-academic child; with curriculum guide. New York: Appleton-Century-Crofts, 1968.

This book contains both theory and practical information. It contains a curriculum guide in language development. It strongly points out the need for recognition of individual differences.

Benyon, S.D. Intensive programming for slow learners. Columbus, Ohio: Charles E. Merrill, 1968.

Many useful suggestions for readiness-type activities are listed.

Blatt, B. The intellectually disfranchised; impoverished learners and their teachers. Boston: Commonwealth of Massachusetts, 1966.

This volume includes theoretical and practical suggestions for special education teachers.

Blodgett, H., & Worfield, G.J. Understanding mentally retarded children. New York: Appleton-Century-Crofts, 1959.

A good paperback brush-up course in mental retardation.

Bortner, M. (Ed.) Evaluation and education of children with brain damage. New York: Charles C. Thomas, 1968.

An excellent, but somewhat overly theoretical, handbook on education of special pupils.

Bruner, J.S. The process of education. Cambridge: Harvard University Press, 1965.

A book describing Bruner's theory of education.

Bruner, J.S. The skill of revelation or the relevance of skills. Saturday Review, April 18, 1970, 66.

An article describing Bruner's theoretical stance on meaningful education and the meaning of education.

Bush, W.J., & Giles, M.T. Aides to psycholinguistic teaching. Columbus, Ohio: Charles E. Merrill, 1969.

Includes many activities appropriate for children of many ages.

Chall, J.S. Learning to read: The great debate. New York: McGraw-Hill, 1967.

Chall presents an exhaustive study of the older and newer theories and practices of teaching beginning reading. She also describes briefly but thoroughly each of the theories of beginning reading education being practiced in the United States, England, and Scotland.

Cruikshank, W.M., & Johnson, G.O. (Eds.) Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1958.

A book of readings on theories of educating exceptional children, by leading authors in the field.

Cruikshank, W.M. (Ed.) Teacher of brain-injured children: A discussion of the basis for competency. Syracuse, N.Y.: Syracuse University Press, 1966.

Many of the leading authors in special education have contributed to this volume describing the qualities of a highly proficient special education teacher.

Driekurs, R. Psychology in the classroom. New York: Harper & Row, 1968.

This book has some excellent suggestions for the teacher interested in developing higher levels of rapport with today's students.

Dupont, H. (Ed.) Educating emotionally disturbed children; readings. New York: Holt, Rinehart, & Winston, 1969.

Leading authors in the field of education of exceptional children write on a wide variety of topics of concern to the special education teacher.



Durbin, M. Teaching techniques. Springfield, Ill.: Charles C. Thomas, 1967.

With the greatest emphasis on reading and pre-reading skills, this book has a wealth of activities from which the teacher may draw.

Engelman, S. Preventing failure in the primary grades. New York: Simon & Schuster, 1969.

This book contains activities and criterion reference-type assessments for children of most school ages. It contains a large number of excellent teaching activity suggestions.

Fader, D.N., & McNeil, E.B. Hooked on books: Program and proof. New York: Berkley Publishing, 1968.

This book presents an example of a successful individualized reading program for special pupils. This program was very successful in the face of a very difficult teaching situation.

Furth, H.G. Piaget for teachers. Englewood Cliffs, N.J.: Prentice-Hall, 1970.

Furth does a commendable job of interpreting some of Piaget's writings into teacher-usable-language constructs.

Ginott, H.G. Teacher and child. New York: Macmillan Co., 1972.

Ginott has some imaginative approaches to adult-pupil behavior. His writing is direct and highly readable while presenting many new ways of dealing with children's behavior in the school situation that appear to be much more constructive than what is happening in some classrooms today.

Glasser, W. Schools without failure. New York: Harper & Row, 1969.

Glasser presents his concepts of Reality Therapy (Glasser, Harper & Row, 1965) using the classroom as the vehicle for his message. Many good ideas, such as classroom discussion, are presented.

Greenberg, H.M. Teaching with feeling. New York: Pegasus, 1970.

Many instances of situations that many teachers have or will encounter in teaching are discussed with suggestions of constructive ways of handling the difficulties.

Havighurst, R.J. Developmental tasks and education. (2nd ed.) New York: David McKay, 1964.

A developmental framework for the presentation of educational tasks to children is presented.

Holt, J. How children learn. New York: Pitman Publishing, 1967.

This is Holt's theory of education which emphasizes the value of early learning. He offers many ideas for teaching activities.

Johnson, D. Clinical teaching of children with learning disabilities. In Successful Programming: Selected Papers on Learning Disabilities. Pittsburgh: Association for Children with Learning Disabilities, 1969.

Johnson presents his ideas of analytical teaching in a highly readable and usable style.

Johnson, G.O. Education for the slow learner. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

A valuable basic text in educational theory and practice in special education.

Karnes, M.B. Helping young children develop language skills: A book of activities. Arlington, Va.: The Council for Exceptional Children, 1968.

As the title implies, this is a book of language development activities for young children. It is based upon Kirk's theories of educational programming upon which Kirk built the Illinois Test of Psycholinguistic Abilities.

Kephart, N.C. The slow learner in the classroom. (2nd ed.) Columbus, Ohio: Charles E. Merrill, 1971.

Kephart presents his theory of education of young children with learning problems. Many pre-academic abilities are presented.

Kirk, S.A., & Johnson, G.O. Educating the retarded child. Cambridge, Mass.: Riverside Press, 1951.

An older "savior" in the field of education of mentally retarded children. This book has a great variety of teaching activities for the special education teacher.

LaBenne, W.D., & Green, B.I. Educational implications of self-concept theory. Pacific Palisades, Calif.: Goodyear Publishing, 1969.

This book gives many helpful hints on teaching to enhance the self-concept of pupils.

Long, N.J., Morse, W.C., & Newman, R.G. Conflict in the classroom. (2nd ed.) Belmont, Calif.: Wadsworth Publishing, 1971.

Cites and gives suggestions for handling many problem pupil behaviors in the classroom setting.

McCarthy, J.J., & McCarthy, J.F. Learning disabilities. Boston: Allyn & Bacon, 1970.

A compact book which explains the educational theories of many of the leading writers in the area of learning disabilities. Includes many suggestions and techniques generalizable to any special education program.

Morse, W.C. Classroom disturbance: The principal's dilemma. Arlington, Va.: The Council for Exceptional Children, 1971.

Focused toward the school principal who will find it most stimulating and thought-provoking regarding his personal relationship to the special education program in his school. Also, teachers will find it very illuminating in its expression of educational theory and in its depiction of the principal's appropriate role in administering the special education program in his school.

Myklebust, H., & Johnson, D. Learning disabilities: Educational principles and practices. New York: Grune & Stratton, 1967.

Various aspects of learning are specified. Suggested programming is presented for each of these learning problems. Many suggestions for educational planning for a wide range of individual differences are presented.

Otto, W., & McMenemy, R.A. Corrective and remedial teaching. Boston: Houghton Mifflin, 1966.

Activities for teaching each of the academic areas are presented in multiples. Also, there are suggestions for making up informal assessment inventories in the major academic areas.

Pines, M. Revolution in learning: The years from birth to six. New York: Harper & Row, 1967.

Pines presents a theory of education which emphasizes the untapped learning powers of young children. She aptly points out that we all have a great deal to learn about education of our children.

Reger, R., Schroeder, M., & Uschoid, K. Special education, children with learning problems. New York: Oxford University Press, 1968.

The authors discuss programming for special education pupils. Many new approaches to often seen problems in teaching special education--classroom management to curriculum design--are suggested.

Sarason, S.B., & Doris, J. Psychological problems in mental deficiency. (4th ed.) New York: Harper & Row, 1969.

Even in its latest edition this is one of the old stand-bys in the field of mental retardation. If one is not familiar with this text, it is strongly recommended.

Siegel, E. Special education in the regular classroom. New York: John Day Co., 1969.

Siegel gives many suggestions of teaching techniques that relate to a large number of problems that all special class teachers, as well as all regular class teachers, encounter in varying degrees and forms in the course of a teaching career.

Young, M.A. Teaching children with special learning needs: A problem-solving approach. New York: The John Day Co., 1967.

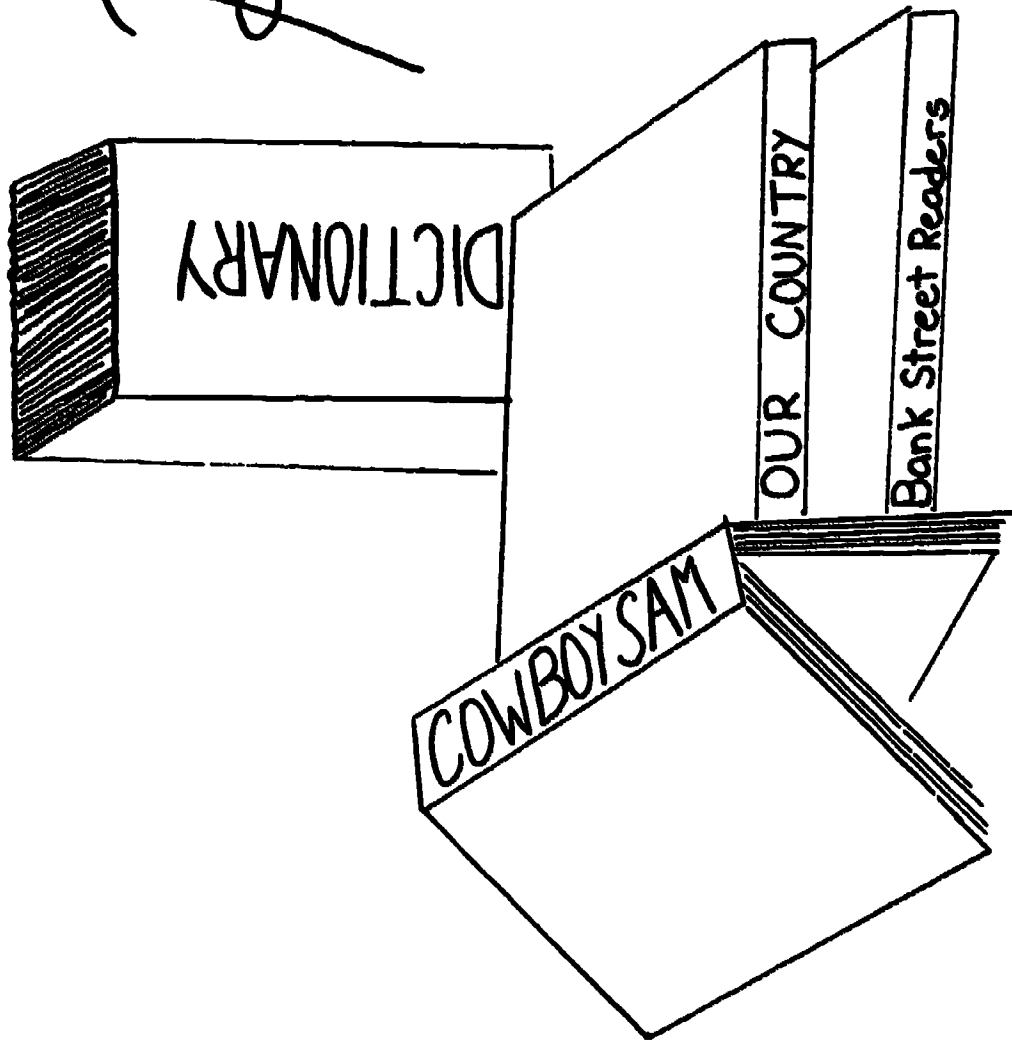
Young presents the concept that special education pupils are in dire need of problem-solving skills because our world is changing so rapidly. He minimizes the need for memorization of factual information because such information has some likelihood of becoming obsolete during the individual's lifetime. This book also lists many activities in specific educational categories.

## PART II

## TABLE OF CONTENTS

## MAJOR AREAS OF DEVELOPMENT

	<u>Page</u>
<b>READING</b>	
Introduction . . . . .	R 1
Abilities and Assessments . . . . .	R 5
Suggested Teaching Activities . . . . .	R 19
<b>HANDWRITING AND SPELLING</b>	
Introduction . . . . .	H/S 1
Abilities and Assessments . . . . .	H/S 5
Suggested Teaching Activities . . . . .	H/S 12
<b>MATHEMATICS</b>	
Introduction . . . . .	M 1
Abilities and Assessments . . . . .	M 3
Suggested Teaching Activities . . . . .	M 57
<b>SCIENCE</b>	
Introduction . . . . .	S 1
Abilities and Assessments . . . . .	S 3
Suggested Teaching Activities . . . . .	S 47



# Reading

## Part II

## INTRODUCTION

This section presents a sequential outline of reading skills beginning with identifying letters of the alphabet and culminating in comprehending what is read. As presented here, this skill sequence lends itself readily to any of the following approaches to reading instruction.

1. Analytic. This approach usually begins with teaching a sight vocabulary and then proceeds to "analyze" the sight words into their structural and phonetic elements.
2. Synthetic. This approach begins with letter-sound combinations and then proceeds to synthesize them into words. It is commonly referred to as the "phonics" approach.
3. Linguistic. This approach begins with identifying letters of the alphabet and then proceeds to relate short (printed) words and phonograms to their spoken sounds. Phonic rules are not taught directly in this approach, as the redundancy of spelling patterns leads the student to infer these rules.
4. Language Experience. This approach usually begins with eliciting items of interest from the student and putting them into printed form, thus stimulating the student's interest in learning to read. Motivation is the fundamental principle underlying this approach. Reading skills and sequences are left entirely to the discretion of the teacher.

Ideally the teacher will employ elements of all these approaches when they are seen as appropriate to the learning problems of various students. The basal reading materials supplied by USDESEA for these programs are either analytic (e.g., The Bank Street Readers) or linguistic (e.g., The Merrill Linguistic Readers). Supplementary phonics materials are provided (e.g., Speech-to-Print Phonics). Teachers will find the Newhall Reading Guide of value when exploring a language experience approach.

The teacher will also want to be informed about several other approaches to reading instruction that may be applicable to specific problems. These approaches involve the use of color coding, kinesthetic cues, or modified forms of the English alphabet. The skill processes presented in this section are applicable to these approaches too, although some of the skill content would obviously need to be modified.

A student who has demonstrated consistent success in tasks that stress visual inputs and motor outputs might do better in a reading approach utilizing visual skills than he would in a phonics program. Conversely, the student who has demonstrated success in tasks that stress auditory input and vocal output might do better in a

phonics program than in a sight or visual approach. The learning style of the pupil is an important consideration in selecting the best approach to reading instruction. The teacher is urged to examine every student and every ability from this point of view. Given the ability, and knowing the way that the student succeeds at a task, the teacher should ask himself this question: "Which reading approach is most likely to enable this student to learn to read?"

Each reading skill in this section is described in specific terms, and is accompanied by an activity for assessing the types of responses a student should be able to generate in order to demonstrate proficiency in the skill. If the student is able to demonstrate proficiency, then the teacher and student will move on to the next skill in the sequence. If the student is not able to demonstrate proficiency, the teacher has at least three options: (1) abandon that skill for the time being and move to a sequentially lower skill; (2) break down the content of the skill and teach it in smaller segments; (3) abandon formal reading instruction entirely. It is hoped, of course, that one of the first two options will be exercised.

This guide presents a skills sequence that is designed to aid the teacher whenever one of the first two options is selected. As further aid to implementing the second option, some of the skills have been expanded into Suggested Teaching Activities (STA). Each STA presents examples of how the skill may be separated into one or more subsets and taught in smaller segments.

Neither the assessment activity found with the skill statement nor the STA should be construed as the only ways to assess or teach the skill. For example, in the assessment activity accompanying the skill To match the configuration of a word, the given word is "boot" and the configuration is □□□. The student's ability to match this configuration to the word "boot" is certainly not an absolute indicator of proficiency in matching other configurations to other words. The given assessment description should be regarded as a type of behavior, which if performed with consistency, would indicate mastery of a given skill. By the same token, the contents of each STA are only examples to guide the teachers in developing their own teaching activities around a given skill.

Time allotments for each set of Suggested Teaching Activities are purposely not indicated. Only the individual teachers can make decisions about the best pace of instruction with their students. Suffice it to say that it is not intended that each STA be covered in a single day.

The Suggested Teaching Activities should serve as clear guides to teachers. It should be kept in mind, however, that they are intended as guides only. Additional teaching suggestions directly related to each skill are indicated in the Teaching Resources and Teaching Strategies columns on each page. The listed resources, available to each teacher, indicate programs offering supplementary or alternative materials to teach the ability, and are intended to increase the number of instructional materials available to the teacher.



To demonstrate proficiency in a skill a student may be required to perform many different tasks. If the teacher finds that separating skill content into smaller segments is not producing progress, it may be profitable to analyze the actual tasks the student is being asked to perform. The format of the Suggested Teaching Activities is designed to lend itself readily to Task Analysis, and the suggested teaching activities selected contain full or partial Task Analysis descriptions. The Task Analysis technique is designed to bring the teacher's attention to certain critical demands within particular tasks. For example, in skills which require recognition (e.g., lower-case letters, singular and plural nouns), the analysis stresses input and output demands of the task. Where the skill requires inference, the memory component of the task is highlighted. This style varies somewhat from the way Task Analysis is presented in other parts of the guide in the sense that it focuses upon those task-analysis elements of greatest importance in terms of the ability with which the task is associated. Applying Task Analysis in this way makes it possible to focus the teacher's attention systematically on the various parts of a task in order to determine trends in task demands which are giving students trouble. Before using the Reading section, the teacher is urged to reread Task Analysis in Part I of the guide.



ABILITIES AND ASSESSMENTS

BASIC SIGHT VOCABULARY

1. To read his own first and last names.

Present the child with the names of three pupils, including his own name, in printed form.

FIND YOUR NAME HERE. DRAW A LINE UNDER IT. NOW, SAY IT.

2. To read the names of objects common to the classroom environment.

Give each child a card labelled with the name of an object in the classroom.

WHEN I POINT TO SOMETHING, HOLD YOUR CARD OVER IT AND TELL ME ITS NAME.

3. To read the following: (Use same assessment format as in #1; record the words the child does not know.)

Names of members of the class

Parent's names

Quarters or home address

Telephone number

Common military community words

Days of the week

Numerals to 10, or higher

Math terms (e.g., add, plus, minus . . .)

4. To read vocabulary words: specific to a basal reader.

Decide which words the pupil must be able to read as sight words. Record the words the child does not know. Use assessment format as in #1.

5. To read the names of the months of the year.

Present a calendar.

WHEN I TURN EACH PAGE OF THIS CALENDAR, TELL ME THE MONTH.

R 5

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 19		p40-45
R 20		p65; 3
R 22 R 24	p3; 1g,h	p40-45

(Abilities and assessments)

LETTERS OF THE ALPHABET

1. To identify letter components as above the line or below the line.

Present the child with a series of flashcards each of which contains a letter-component line segment extending either entirely above or entirely below a horizontal line.

IS THIS LINE SEGMENT ABOVE THE LINE OR BELOW THE LINE?

2. To identify a line segment as a horizontal, straight, curved, or slanted segment.

Present the above letter components on flashcards for about fifteen seconds each, or for as long as you feel is necessary.

IS THIS A STRAIGHT LINE, A CURVED LINE, OR A SLANTED LINE?

3. To identify the forms of the letters of the alphabet.

Draw the manuscript capital letters I, E, C, O, D, P on the board one at a time, erasing each letter before beginning the next.

HERE IS A LETTER OF THE ALPHABET. TELL ME WHETHER IT IS MADE WITH STRAIGHT LINES, CURVED LINES, OR STRAIGHT AND CURVED LINES.

4. To match the configuration of letters.

Put the following letters on the board:

b      p      h      m

WATCH WHILE I DRAW A BOX AROUND THIS LETTER [b] NOW LOOK OVER HERE AND FIND A LETTER THAT YOU CAN DRAW THE SAME KIND OF BOX AROUND. NOW, YOU DO IT.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p11; 1a,b	
	p11; 1a,b	
	p11; 1a,b	p64; 1 p40-45
	p11; 1b,c,d	

(Abilities and assessments)

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
<p>5. <u>To recognize and name upper-case letters.</u></p> <p>HERE ARE CAPITAL LETTERS OF THE ALPHABET. AS I POINT TO EACH LETTER, LOOK AT IT. TELL ME THE NAME OF THE LETTER.</p> <p>Write letters one at a time, or use flashcards. Remove each letter before going to the next.</p>	R 29	p4; 6a	p64; 1
<p>6. <u>To recognize and name lower-case letters.</u></p> <p>Present a worksheet with the alphabet in upper and lower case.</p> <p>ON THIS PAGE WE HAVE ALL THE CAPITAL LETTERS, WITH THE LITTLE LETTERS NEXT TO THEM. WHEN WE SING (OR SAY) THE LITTLE LETTERS OF THE ALPHABET, POINT TO THE LITTLE LETTERS.</p>	R 31	p4; 6a	p64; 1
<p><u>WORD-ATTACK SKILLS</u></p> <p>A. <u>Word Configuration Clues</u></p> <p>1. <u>To match the configuration of a word.</u></p> <p>Put the following words on the board:</p> <p>beet      beer      bees      beef</p> <p>WATCH WHILE I DRAW A BOX AROUND THIS WORD ( <u>beet</u> ). NOW LOOK AT THE OTHER WORDS. FIND ONE THAT IS THE SAME SHAPE. DRAW THE SAME KIND OF BOX AROUND IT.</p> <p>B. <u>Contextual Clues</u></p> <p>1. <u>To infer the appropriate printed word from the context of the printed sentence.</u></p> <p>Present the following sentence on the board:</p>	R 33	p4; 6b p5; 6c-o p3; 1a-yy	
	R 35		

(Abilities and assessments)

Mother gave us some cake to \_\_\_\_\_  
eat tea

READ THIS SENTENCE TO YOURSELF AND DECIDE WHICH WORD SHOULD BE AT THE END. NOW READ THE SENTENCE TO ME.

2. To infer the appropriate pronunciation of a word, using its surrounding context as clues.

Present the following sentences on the board:

The boy had a tear in his eye.  
The boy had a tear in his coat.

READ THESE SENTENCES TO YOURSELF. NOW READ THEM TO ME.

C. Structural Analysis

1. To identify root words.

Present a worksheet with the following words in a column: walking, talked, climbing, drops, wants, pushes, drinking.

ON THE LINE BESIDE EACH WORD, WRITE ITS ROOT WORD.

2. To recognize singular and plural nouns.

Prepare a sheet containing pictures of single objects and multiple objects (e.g., car, trucks). Under each picture place both the singular and plural forms of the word. Use only nouns which simply take an s for their plural forms.

UNDER EACH PICTURE ARE TWO WORDS. LOOK AT EACH PICTURE. CIRCLE THE WORD THAT TELLS BEST WHAT IS IN IT. (Later, repeat with es: dishes, boxes, peaches, churches, etc.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 37	p3,4; 1a-lyy	
R 39	p5; 6c-s p3; 1a-s	p40-45
R 42	p5; 6e-s	p40-45

(Abilities and assessments)

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
R 45	p5; 6h, i p3; 1g-u	p40-45	
	p5; 6h		
	p3; 1s-cc p5; 6k-s		
	p3; 1s-cc p5; 6k-s	p40-45	

3. To classify "-ing" verb endings.

Present these words on the board: falling, looking, seeing, doing, crying, marking.  
READ THESE WORDS TO ME. TELL ME HOW THEY LOOK ALIKE. TELL ME HOW THEY SOUND ALIKE.

4. To identify compound words.

Prepare a worksheet with a list of compound words; e.g., cowboy, birdhouse, baseball.  
EACH OF THESE WORDS IS MADE UP OF TWO SMALLER WORDS. TELL ME THE SMALL WORDS IN EACH WORD.  
CIRCLE THE SMALL WORDS IN EACH WORD.

5. To read root words with prefixes.

Present the following on the board:

- (1) I will untie the rope.

(2) He will return soon.

(3) This is an indoor game.
- (4) Please refill my cup.

(5) He is unhappy.

(6) Please remove the picture.

READ THESE TO ME.

6. To read root words with suffixes.

Present the following on the board:

- (1) He is a friendly dog.

(2) Look at the tallest man.

(3) You must walk slowly.
- (4) I now have seventy cents.

(5) Safety must come first.

(6) His bag is the fullest.

READ THESE TO ME.

(Abilities and assessments)

7. To read words showing the possessive case.  
Present the following on the board:  
(1) This is Ted's book. (4) That is the General's car.  
(2) Bill's hair is long. (5) We are in Miss Brown's class.  
(3) Here is mother's coat.  
READ THESE TO ME.
8. To classify "-ed" verb endings.  
Present the following words on the board:  
looked jumped stamped danced bumped  
Note: All these words end with the t sound; do not use words such as played, opened, or sided at this time.  
READ THESE WORDS TO ME. HOW DO THEY LOOK ALIKE? HOW DO THEY SOUND ALIKE?
9. To read contractions.  
Present the following on the board:  
(1) It's a nice day today. (4) The boys aren't here yet.  
(2) Tell me when you're coming. (5) She'll come later.  
(3) It isn't time to go. (6) I can't do it now.
10. To identify syllables within words.  
Present the following on the board:  
into cannot going farmer woman almost today after workbook  
garden

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 47	p5; 6k-s	p40-45
	p5; 6k-s	
R 49	p3; 1s-cc p5; 6k-s	p40-45
	p3; 1s-cc p5; 6k-s	
R 52	p5; 6k-s	
	p3; 1s-cc	



(Abilities and assessments)

TEACHER TIPS														
Suggested Activities	Teaching Resources	Teaching Strategies												
<p>GO TO THE BOARD AND LOOK AT EACH WORD. READ IT AND THEN DRAW AN UP-AND-DOWN LINE BETWEEN THE SYLLABLES.</p> <p>11. <u>To recognize compound words.</u></p> <p>Present the following compound words as two separate words. E.g., cow, boy; snow, man; base, ball; foot, ball.</p> <p>HERE ARE SOME UNFINISHED SENTENCES. LOOK AT THESE ROOT WORDS. MAKE ONE NEW WORD TO FINISH EACH SENTENCE.</p> <p>(1) I can hit the _____. (baseball) (2) I can kick the _____. (football) (3) The boy with a rope is a _____. (cowboy) (4) Last winter we made a _____. (snowman)</p> <p>D. <u>Phonic Analysis</u></p> <p><u>Initial consonants</u></p> <p>1. To code the sound of "f" with printed words beginning with "f." (Use this format with all initial consonants.)</p> <p>Beside a picture of a fox write the words:</p> <table><tr><td>foot</td><td>dog</td><td>fence</td><td>fall</td><td>door</td><td>fair</td></tr><tr><td>many</td><td>deer</td><td>fire</td><td>dance</td><td>fog</td><td>mother</td></tr></table> <p>LOOK AT THE FOX. SAY "FOX" TO YOURSELF. UNDERLINE EVERY WORD THAT BEGINS LIKE "FOX."</p> <p><u>Consonant digraphs</u></p> <p>2. To read words beginning with the digraph "sh." (Use this format with all digraphs.)</p>	foot	dog	fence	fall	door	fair	many	deer	fire	dance	fog	mother	<p>R 53</p> <p>R 55</p> <p>R 57</p>	<p>p66; 4 p40-45</p> <p>p6; 10 p7; 21,23 p7; 28b-c p3; 1e-i p8; 29g,h</p> <p>p7; 23 p6; 10</p>
foot	dog	fence	fall	door	fair									
many	deer	fire	dance	fog	mother									

(Abilities and assessments)

- Present the following sentences on the board, and tell the student to read them to you:  
The door is shut. Here is a shell. The sheet is on the bed. This is a big ship.
- Consonant blends
3. To match the "s" blends ("sp," "sk," "st") with pictures that begin with those sounds. (Use this format for all blends.)
- Print the letters sp on the board. Present a worksheet with the following pictures: a spear, a spider, a spike, a spoon, a star, a spur, a saddle, scissors, a STOP sign, a sock, the numeral 6.
- HERE ARE THE LETTERS SP ON THE BOARD. LOOK AT YOUR PAPER. WRITE THESE LETTERS BESIDE EVERY PICTURE WHOSE NAME BEGINS WITH SP.
4. To read words that begin with consonant blends (for example: sp, sk, sw, st).
- Print the following paragraph on a piece of paper:
- Jill likes to skip. Jack likes to swim. Pat likes to spell. Jim likes to stand still. What do you like to do?
- READ THIS FOR ME.

Substituting initial consonant sounds

5. To read new words by substituting initial consonants in the phonograms "eed," "old," and "ind."
- Write the following on the board:
- |   |   |   |   |
|---|---|---|---|
| d | f | t | f |
| n | m | m | k |
| s | s | s | m |
| w | c | c | r |
- (Use only one phonogram at one time.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 59	p6; 10 p7; 23	p40-45
	p6; 10 p7; 23 p5; 6e-m p3; 1h-vv	p40-45
	p6; 10 p7; 23	p65; 3

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>I'M GOING TO TAKE THE TOP LETTER AND PUT IT IN FRONT OF EED. WHAT WORD DO WE HAVE NOW? NOW I'LL ERASE THIS LETTER AND PUT IN THE NEXT ONE. WHAT WORD DO WE HAVE NOW? . . .</p> <p><u>Substituting final consonants</u></p> <p>6. To read new words by substituting final consonants</p> <p>Print the following phonograms on the board:</p> <p>ha__ ba__ gu__ sla__ bu__ ru__</p> <p>WRITE THE LETTER M AT THE END OF EACH GROUP OF LETTERS AND READ THE WORD YOU'VE MADE. NOW ERASE THE M'S, AND PUT IN THE LETTER I. READ THE NEW WORDS TO US.</p> <p><u>Consonant irregularities (teach as sight words)</u></p> <p>7. To read words with voiced and unvoiced initial consonants.</p> <p>Put these words on the board and tell the student to read them to you:</p> <p>gas gem green giant can't come cent cup city</p> <p>8. To read words with silent consonants.</p> <p>Put these words on the board and tell the student to read them to you:</p> <p>knife right often</p> <p>9. To read words that contain ought or aught.</p> <p>Give the child the following to read: The naughty daughter went out in winter without her coat. She caught cold. That taught her she ought to wear a coat.</p>	<p>p6; 10 p7; 23</p> <p>p3; g-cc</p> <p>p3; g-cc</p>	<p>p40-45</p> <p>p66; 5,6</p>

(Abilities and assessments)

Short vowel sounds

10. To read words containing the short vowel sounds (for example, the short vowel sound "a").

Present the following sentences on the board:

- (1) The rat is back at camp.
- (2) She sat with a fan in her hand.
- (3) The flag with the black band is on the stand.

READ THESE TO ME.

Long vowel sounds

11. To read words containing the long vowel sounds (for example, the long "e" sounds).

Give the child the following to read orally: Jan, go to the beach. We each need something to eat.  
I will meet you at the beach in fifteen minutes.

Exceptions to vowel rules (teach as sight words)

12. To read words containing "i," followed by "nd," "gh," or "ld."

Present the following sentences on the board and tell the student to read them to you:

- (1) We must find the right child.
- (2) The waves are high and wild tonight.
- (3) That was a mild fight.

Diphthongs

13. To read words containing the diphthongs "ow," "ou," "oi."

Present the following sentences on the board and tell the student to read them to you:

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 61	p6; 10 p7; 23	p40-45
R 63	p6; 10 p7; 23	
	p6; 10 p7; 23	p40-45



(Abilities and assessments)

3. To recall facts and events in a story.

Prepare a worksheet such as the following, which is based on "A Dog Like Zippy."

- (1) Who said Zippy was funny looking? \_\_\_\_\_. (4) Who told Bill it would take years and years?  
(2) Where did Henry go? \_\_\_\_\_. (5) Where did Bill look for a dog like Zippy?  
(3) When did Bill go to Henry's house to play with Zippy? \_\_\_\_\_.  
(6) When did Henry come back? \_\_\_\_\_.

READ EACH QUESTION AND WRITE YOUR ANSWER ON THE LINE NEXT TO IT.

4. To compare and contrast characters.

Stage a puppet show using two characters who have similarities and differences (e.g., Zippy and Little Zippy, from "A Dog Like Zippy"). Have the student tell how they are alike and how they are different.

5. To recall the sequence of events in a story.

Prepare a worksheet such as the following, which is based on "A Dog Like Zippy."

- \_\_\_\_ One day Bill got a letter.  
\_\_\_\_ Bill looked in dog stores.  
\_\_\_\_ Just before school began, Henry came back.  
\_\_\_\_ Bill got a dog like Zippy.  
\_\_\_\_ Henry went away to the country.

READ THESE SENTENCES, AND NUMBER THEM IN THE ORDER THAT THEY HAPPENED IN THE STORY. PUT NUMBER 1 BY THE ONE THAT HAPPENED FIRST, ETC.

6. To recognize the main idea of a story.

Present the following story on a worksheet or an experience chart; either have the student read it, or read it to him.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
R 66	p4; 111-11	p40-45
R 67	p5; 6n-s	p80-86
	p6; 13-19	
	p7; 20a-c	
R 69	p6; 11	p40-45

(Abilities and assessments)

At lunch time last Saturday, Tom picked up his plate. What a surprise!  
His mother had hidden a quarter under it. "It's for the movies," his mother  
said. When Tom finished his lunch he went off to the movies.

Write the following titles on the board. Tell the student to read them, or read them to him.  
Have him underline the one that would make the best title for the story.

A Happy Surprise                      Tom Eats His Lunch                      Tom Goes to the Movies

7. To associate ideas that are in printed form.

Prepare the following worksheet.

READ THE FIRST SENTENCE; THEN READ THE OTHER TWO SENTENCES AND DRAW A LINE UNDER THE ONE THAT  
GOES BEST WITH THE FIRST SENTENCE.

John had money for the movies.                      Dad told Bob to wash the car.                      School starts at 8:30.  
So he saw a cowboy movie.                      So Bob got a pail of water.                      So Karen gets up at 7:00.  
So he went to bed.                      So Bob got a fork and spoon.                      So Karen likes to read.

8. To draw conclusions from facts.

Prepare the following worksheet. Tell the student to read each story and answer each question  
by circling YES or NO.

Jack has three candy bars. Bob, Tom, and Jim come to play with him. Will there be a candy bar for each boy in the story? Yes    No	Miss Jones has four pencils. Betty and Jane each need a pencil. Can Miss Jones give them each a pencil?    Yes    No	It was 9:00. Miss Jones said, "Bob, you have three hours to do your work." Bob was done at 11:00. Did he do his work on time? Yes    No
---	---	---

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p4; 111-11	
	p5; 6n-s	p40-45
	p7; 20a-c	
	p6; 11	



(Abilities and assessments)9. To distinguish fact from fiction (evaluation).

Present the following worksheet. Tell the student to circle YES if it could happen in real life, and NO if it could not happen in real life.

- |   |     |    |
|---|-----|----|
| (1) Father Bear told Baby Bear to go skating. | YES | NO |
| (2) Ships can float.                          | YES | NO |
| (3) It gets dark at night.                    | YES | NO |
| (4) The cow jumped over the moon.             | YES | NO |

10. To answer questions about a story.

Give the child a story to read silently. Make up three good questions from the story. When the child completes the reading, ask him the questions.

11. To relate a story accurately.

Read "Put Me in the Zoo."

WHAT WAS THE FIRST THING THAT HAPPENED? WHAT WAS THE NEXT THING? (Continue questioning until the conclusion.) WHAT WAS THE STORY ALL ABOUT?

12. To evaluate a written idea.

Prepare the following worksheet:

- |                          |                                    |                          |
|--------------------------|------------------------------------|--------------------------|
| When you want a new bike | When you get ready to go to school | When you go into the PX  |
| you go for a walk.       | you go to the movies.              | you show your ID.        |
| you save your money.     | you sleep late.                    | you jump up and down.    |
| you eat lots of food.    | you get dressed.                   | you take your shoes off. |

READ THE FIRST LINE IN EACH SET. THEN READ THE OTHER LINES AND PUT A CIRCLE AROUND THE ONE THAT GOES BEST WITH THE FIRST ONE.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p3; g-cc  p5; n-s  p5; 6n-s  p6; 11	p40-45    p40-45



BASIC SIGHT VOCABULARY

Ability and Assessment:

2. To read the names of objects common to the classroom environment.

Give each child a card labelled with the name of an object in the classroom.

WHEN I POINT TO SOMETHING, HOLD YOUR CARD OVER IT AND TELL ME ITS NAME.

Content-Development Activities:

- (1) LOOK AT YOUR PAPER. FIND THE WORD UNDER THE PICTURE AND CIRCLE THE WORD JUST LIKE IT ON THE RIGHT SIDE OF THE PAPER.

- (2) Have name tags on common objects in the room (chair, door, window, desk, pencil, chalk, etc.). Have an identical set of name tags to give to the child.

LOOK AT THIS CARD AND MATCH IT WITH A CARD ON AN OBJECT JUST LIKE IT.

- (3) Use the already printed name tags of objects in the room.

I WILL GIVE YOU A NAME TAG FOR A THING IN THE ROOM. YOU PUT THE TAG ON THE THING IT NAMES.

- (4) Print several names of objects on a transparency. Project them on the overhead projector.

LOOK AT THE WORD I POINT TO AND TELL ME WHAT IT IS.

Reinforcement Activities:

- (1) Have the object name tags in a pile on a table near the door. Choose one child to put the names on objects at the beginning of the school day. Choose another child to take the names off the objects at the end of the school day. Have him bring the cards to you and read them.

- (2) Develop a Learning Center activity for the sight vocabulary words.

- (3) Keep name tags on objects for several days and occasionally ask children to remove them and replace them on the objects the following day.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 2k p66; 6
	p30
	p46 p37; 1g,h

(Basic sight vocabulary)

Ability and Assessment:

3. To read the names of members of the class.

Give the child cards with classmates' names printed on them.

EACH OF THESE CARDS HAS A PERSON'S NAME ON IT. PASS THEM OUT SO THAT EVERYBODY HAS HIS OR HER OWN NAME.

Task Analysis	
<u>Process</u>	<u>Cognition</u>

In: visual verbal  
Out: motor nonverbal

perceptual or coding  
recall (i.e., who is who)

Content-Development Activities:

- (1) Ditto the names of all the children in a column on the left side of a page; on the right, next to each name, add the names of three or four children, repeating the name from the left column in random sequence.

Randy	Tom	Mike	Randy	Mary
Sue	Mary	Andy	Betty	Sue
Frank	Frank	Ron	Mary	Randy

LOOK AT THE NAME IN THE LEFT COLUMN. CIRCLE THE NAME THAT LOOKS LIKE IT ON THE RIGHT SIDE OF THE PAPER.

- (2) Print each child's name on two cards. Give each child one card.

THERE IS A CARD ON THIS TABLE THAT LOOKS LIKE THE ONE YOU HAVE. COME AND POINT TO THE ONE THAT LOOKS LIKE YOURS.

- (3) Place three children by the door and give each one name cards for one-third of the children in the class.

AS THE OTHER CHILDREN COME IN THE DOOR, GIVE EACH ONE HIS NAME CARD IF YOU HAVE IT.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40-45 p37; 1g
	p37; 1g

(Basic sight vocabulary)

Reinforcement Activities:

- (1) Follow same type of reinforcement activities as are used in the ability to read the names of common objects in the classroom.
- (2) Play a game with name cards.
- (3) Plan a Learning Center activity with dittoed sheets as described in Content Development Activity (1).

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
		p47

(Basic sight vocabulary)

Ability and Assessment:

3. To read common military community words.

Print selected military community words on the board.

HERE ARE SOME WORDS WE SEE OFTEN AROUND THE BASE. READ THEM TO ME.

Task Analysis

The cognitive level here is perceptual if the student is responding to whole words; and coding if he is attacking the parts of each word. The Content-Development Activities which follow are all at a perceptual level.

Content-Development Activities:

- (1) Take a field trip around base facilities such as the Commissary, Foodland, Stars & Stripes. Take photographs or make sketches of each place, and label them. Make a separate set of identical labels. HERE ARE SOME PICTURES OF PLACES WE VISITED LAST WEEK. SHOW ME THE BUS STOP AT THE SHOPPING CENTER.
- (2) Give the pupils a set of labels identical to the labels on the pictures.  
PUT THE WORDS YOU HAVE NEXT TO THE SAME WORDS UNDER EACH PICTURE.
- (3) Remove the picture labels. Give them to the student  
LOOK AT THE PICTURES. PUT THE WORDS YOU HAVE WITH THE RIGHT PICTURES.
- (4) Prepare a worksheet with base pictures on the left and three multiple-choice labels to the right of each.  
LOOK AT EACH PICTURE AND CIRCLE THE WORD THAT TELLS WHAT IT IS.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g
	p37; 1g p37; 2k

(Basic sight vocabulary)

(5) Give the student the set of labels, but not the pictures.

HOLD UP BUS STOP . . . PICK-UP-POINT . . . FOODLAND . . . etc.

(6) Xerox a worksheet with pictures of places on the base in the left column and multiple-choice names in the right column.

CIRCLE THE WORD ON THE RIGHT-HAND SIDE OF YOUR PAGE THAT IS THE NAME OF THE PICTURE ON THE LEFT-HAND SIDE OF YOUR PAPER.

Task Analysis	
Process	Cognition
In: visual verbal	perceptual
visual nonverbal	recognition
Out: motor nonverbal	

Reinforcement Activities:

(1) Make a bulletin board display with the pictures of the base photographed on the field trip, then ask the pupils to place the appropriate label beneath each picture.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g
	p37; 2k

(Basic sight vocabulary)

Ability and Assessment:

3. To read the names of the days of the week.

Have the names listed on the blackboard.

HERE ARE THE NAMES OF THE DAYS OF THE WEEK. READ THEM FOR ME.

Content-Development Activities:

- (1) Ditto a worksheet with the names of the days of the week on the left side of the paper.

CIRCLE THE NAME OF THE DAY ON THE RIGHT SIDE OF YOUR PAPER THAT IS THE SAME AS THE NAME OF THE DAY ON THE LEFT SIDE OF YOUR PAPER. I WILL CIRCLE THE FIRST ONE ( MONDAY ).

Monday	Tuesday	Wednesday	Sunday	Monday
Tuesday	Wednesday	Sunday	Monday	Tue
Wednesday	Saturday	Monday	Tuesday	Wednesday
Thursday	Monday	Wednesday	Thursday	Friday

- (2) Have the name of the day of the week printed on the chalkboard or bulletin board.

LOOK AT THE WORD ON THE BOARD. IT IS THE NAME OF TODAY. WHAT DAY IS TODAY?

- (3) Point to the name of each day of the week as it is printed on the board.

WHEN I POINT TO THE WORD THAT IS TODAY'S NAME, RAISE YOUR HAND.

- (4) Use flash cards with the names of the days of the week on each one.

EACH TIME I SHOW YOU A CARD, YOU SAY THE NAME OF THE DAY ON THE CARD.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g p40-45
	p37; 1g p40-45

(Basic sight vocabulary)

(5) Have pictures of day-specific activities such as: Saturday--going to the movie; Monday to Friday--going to school, etc.

TELL ME THE NAME OF THE DAYS OF THE WEEK THAT MIGHT GO WITH THESE PICTURES.

(6) Have mounted on a bulletin or chalkboard a set of weekday name cards put in puzzle fashion, i.e.,

Sun > day

Have all the cards cut the same way. Each child has a similar set.

(7) Repeat last activity, but cut each card differently.

Examples: Mon < day      Tues > day

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g  p37; 1g

LETTERS OF THE ALPHABET

Ability and Assessment:

3. To identify the forms of the letters of the alphabet.

Draw the manuscript capital letters T, E, C, O, D, P on the board one at a time, erasing each letter before beginning the next.

HERE IS A LETTER OF THE ALPHABET. TELL ME WHETHER IT IS MADE WITH STRAIGHT LINES, CURVED LINES. OR STRAIGHT AND CURVED LINES.

Task Analysis	
Process	Cognition
In: visual nonverbal auditory verbal	perceptual recall
Out: vocal verbal	

Content-Development Activities:

(1) Draw straight and curved lines on the board.

WHEN I SAY STRAIGHT LINE OR CURVED LINE, POINT TO THE ONE I SAY.

Task Analysis	
Process	Cognition
In: visual nonverbal auditory verbal	perceptual recognition
Out: motor nonverbal	

(2) Prepare visual discrimination worksheets, using upper-case manuscript letters. (See My Alphabet Book, p. 4)

H	B	H	O
O	T	M	O

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p4; 6a p5; t,u,v	
p4; 3 p5; t,u,v	
p4; 6a	
p4; 6a	p37; 1g p40-45



(Letters of the alphabet)

LOOK AT THE TOP ROW. PUT YOUR FINGER ON THE LETTER IN THE BOX. NOW LOOK OVER HERE AND FIND ONE JUST LIKE IT. CIRCLE IT.

Task Analysis	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	perceptual
Out: motor nonverbal	awareness

- (3) Repeat the above activity but ask the child to find the letters which are not like the letter on the left.
- (4) Cut letters out of oak tag or stiff paper.  
HERE ARE SOME LETTERS. CLOSE YOUR EYES AND FEEL THEM. NOW, TELL ME IF THEY ARE MADE WITH STRAIGHT LINES, CURVED LINES, OR STRAIGHT LINES AND CURVED LINES.
- (5) HERE ARE SOME LETTERS. LOOK AT THEM AND FIND ALL LETTERS MADE WITH STRAIGHT LINES. PUT THEM IN THIS BOX.
- (6) Repeat the above exercise with letters made with curved lines, then with letters made with both curved and straight lines.

Task Analysis	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	conceptual
Out: motor nonverbal	recall

- Note: Make certain all children who are having difficulty with the forms of letters have several opportunities to do this task.
- (7) HERE ARE SOME LETTERS MADE WITH SANDPAPER. TRACE OVER EACH ONE AND TELL ME WHETHER THE LETTER IS MADE WITH STRAIGHT, CURVED, OR STRAIGHT AND CURVED LINES.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p4; 6a	p37; 1g
	p37; 2k
	p37; 2k

(Letters of the alphabet)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
<p>(8) Place three or four plastic letters on the child's desk. Give him one letter that has the same form as one of the letters he has.</p> <p>HERE ARE SOME LETTERS. FIND ONE JUST LIKE THE LETTER I GAVE YOU. TELL ME WHETHER IT HAS STRAIGHT LINES, CURVED LINES, OR CURVED AND STRAIGHT LINES.</p> <p>(9) HERE ARE TWO LETTERS. LOOK AT THEM. I'M GOING TO ERASE THEM. NOW, TELL ME WHICH LETTER WAS MADE WITH STRAIGHT LINES. YES, THE FIRST ONE. WHICH LETTER WAS MADE WITH CURVED LINES? YES, THE SECOND ONE.</p> <p>(10) Repeat the above exercise, using curved and straight lines.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) WE ARE GOING TO PLAY HOP SCOTCH. HOP ON THE SQUARES WITH LETTERS MADE WITH CURVED LINES. NOW, HOP ON LETTERS MADE WITH STRAIGHT AND CURVED LINES. (Give an example.)</p> <p>(2) Provide several plastic letters which are of different forms.</p> <p>FIND ALL THE LETTERS WITH STRAIGHT LINES AND PUT THEM IN THIS BOX.</p> <p>Note: Repeat the above activity using curved letters; then with letters which are formed with curved and straight lines.</p> <p>(3) AS I SPIN THE LETTER WHEEL AND IT STOPS ON A LETTER, TELL ME THE FORM OF THE LETTER (STRAIGHT, CURVED, STRAIGHT AND CURVED). (See General Directions, <u>My Alphabet Book</u>.)</p>	<p>p4; 6a</p> <p>p37; 2k</p>

(Letters of the alphabet)

Ability and Assessment:

5. To recognize and name upper-case letters.

HERE ARE CAPITAL LETTERS OF THE ALPHABET. AS I PCINT TO EACH LETTER, LOOK AT IT. TELL ME THE NAME OF THE LETTER.

Write letters one at a time, or use flash cards. Remove each letter before going to the next.

Task Analysis	
Process	Cognition
In: visual verbal	perceptual
Out: vocal verbal	recall

Content-Development Activities:

These activities are to be used in conjunction with My Alphabet Book.

(1) Use page 2 of My Alhabe: Book or ditto sheets like it. For additional practice, prepare other sheets changing the order of letters.

PUT YOUR MARKER UNDER THE FIRST ROW OF LETTERS. LOOK AT THE LETTER IN THE LITTLE BOX. NOW LOOK AT EVERY LETTER IN THE BIG BOX IN THAT ROW: FIND A LETTER WHICH IS NOI LIKE THE ONE IN THE BOX. DRAW A CIRCLE AROUND IT.

(2) Cut capital letters from tag board.

THESE ARE CAPITAL (BIG) LETTERS OF THE ALPHABET. AS I HOLD THEM UP, LOOK AT THEM AND SAY THE NAME OF THE LETTER AFTER I SAY IT. THIS IS A CAPITAL A, NOW YOU SAY IT.

(3) WE ARE GOING TO SING ("My Alphabet Song," My Alphabet Book). AS WE SING IT SLOWLY, I WILL POINT TO THE CAPITAL LETTERS CF THE ALPHABET WRITTEN ON THE BOARD.

Sing the song pointing to the letters yourself. Practice this exercise frequently, using page 1 of My Alphabet Book.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p4; 6a	
p4; 6a	p37; 2k

(Letters of the alphabet)

TEACHER TIPS										
Teaching Resources	Teaching Strategies									
<p>(4) Print the letters on the board or use cards with the names of the letters on them. See <u>My Alphabet Book</u>, pp. 2-9. Follow directions. Prepare additional exercises for those students who are having difficulty.</p> <p>AS I POINT TO A CAPITAL LETTER, CALL ITS NAME.</p> <p>(5) Prepare a worksheet containing six names, including the students' names.</p> <p>FIND YOUR NAME ON THIS SHEET OF PAPER. LOOK AT THE CAPITAL LETTER IN YOUR NAME AND SAY IT.</p> <p>(6) EACH OF YOU HAS A CARD WITH THE CAPITAL LETTER THAT BEGINS YOUR FIRST NAME. ALL OF YOU WITH CAPITAL LETTERS BEGINNING WITH A, B, C, D, OR E COME BEFORE THE CLASS AND CALL ON SOMEONE TO NAME YOUR LETTER. NOW, (child's name) SHOW YOUR CARD, ETC.</p> <p>(7) THESE LETTERS ON THE BOARD ARE LETTERS YOU KNOW. READ THEM TO US. (Examples: PX, EES, AFN, PCS, AFX, MP, UP)</p> <p><u>Reinforcement Activities:</u></p> <p>(1) This game is called Letter Lotto (played like Bingo). Demonstrate on the board how it is played. Play other games described in <u>My Alphabet Book</u>.</p> <p>WE ARE GOING TO PLAY A GAME. YOU HAVE A SHEET OF PAPER THAT LOOKS LIKE THIS. AS I CALL THE LETTER, MARK AN X OVER THE LETTER I CALL.</p> <div><table><tr><td>B</td><td>D</td><td>C</td></tr><tr><td>F</td><td>E</td><td>A</td></tr><tr><td>H</td><td>T</td><td>N</td></tr></table></div>	B	D	C	F	E	A	H	T	N	<p>p4; 6a</p> <p>p37; 2k</p>
B	D	C								
F	E	A								
H	T	N								

(Letters of the alphabet)

Ability and Assessment:

6. To recognize and name lower-case letters.

Present a worksheet with the alphabet in upper and lower case.

ON THIS PAGE WE HAVE ALL THE CAPITAL LETTERS, WITH THE LITTLE LETTERS NEXT TO THEM. WHEN WE SING (OR SAY) THE LITTLE LETTERS OF THE ALPHABET, POINT TO THE LITTLE LETTERS.

Task Analysis	
Process	Cognition
In: visual verbal auditory verbal	perceptual awareness
Out: motor nonverbal	

Content-Development Activities:

- (1) Use page 40 of My Alphabet Book.

LOOK AT THE NAMES OF THE CAPITAL LETTERS AND THE LITTLE LETTERS IN THE FIRST BLOCK ON YOUR PAPER. POINT TO THE P, THE O, THE Y, ETC.

- (2) Use the remainder of p. 40, My Alphabet Book as directed.

- (3) If cut-out letters cannot be obtained, use cards on which the little letters are printed.

HERE ARE SOME LITTLE LETTERS. AS I HOLD EACH ONE UP, YOU SAY ITS NAME.

- (4) LOOK AT THESE FIVE CARDS AND SAY THE NAMES OF THE LITTLE LETTERS. IF YOU NAME ALL OF THEM YOU MAY ACT AS TEACHER AND CALL ON SOMEONE TO CALL THE NAMES.

- (5) Write the names on the board.

HERE ARE THE NAMES OF ALL THE PUPILS IN THE CLASS. POINT TO YOUR NAME AND SAY THE LITTLE LETTERS.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p4; 6a p5; t,u,v	
p4; 6a	p37; 2k

(Letters of the alphabet)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
(6) THERE ARE CARDS WITH THE NAMES OF ALL THE MEMBERS OF THE CLASS ON THIS TABLE. TAKE TWO OF THEM AND TELL ME THE NAMES OF THE LITTLE LETTERS IN EACH NAME.  (7) TELL ME THE NAMES OF THESE LETTERS. Example: o, p, r, c, t, k, m, o, e. Continue until all letters of the alphabet have been named.  (8) Present cut-out letters or cards with the little letters printed on them. LISTEN AS I NAME THREE LETTERS. COME TO THE TABLE. PICK UP THE LETTERS AND SAY THEIR NAMES.  (9) LISTEN WHILE I SAY TWO LETTERS. COME TO THE TABLE AND FIND THE CAPITAL LETTERS AND LITTLE LETTERS THAT GO WITH THEM.  <u>Reinforcement Activities:</u>  (1) Play Tic-Tac-Toe. See General Directions in <u>My Alphabet Book</u> .  (2) Use other games and activities in <u>My Alphabet Book</u> . See General Directions, and back cover.	p4; 6a	p37; 2k

WORD ATTACK SKILLS

Ability and Assessment:

A. Word Configuration Clues

1. To match the configuration of a word.

Put the following words on the board:

beet beer bees beef

WATCH WHILE I DRAW A BOX AROUND THIS WORD (beer). NOW LOOK AT THE OTHER WORDS. FIND ONE THAT IS THE SAME SHAPE. DRAW THE SAME KIND OF BOX AROUND IT.

Task Analysis	
Process	Cognition
In: visual verbal	perceptual
Out: motor nonverbal	awareness

Content-Development Activities:

- (1) Put the following words on separate cards. Cut them out around their configurations, and outline the border of each with a marking pen.

hoop   move   loop   saw

LOOK AT THIS WORD (hoop). NOW LOOK AT THESE WORDS AND PICK UP ONE THAT IS THE SAME SHAPE.

- (2) Use other familiar words in the same format as Activity (1).  
(3) Repeat assessment activity.







Reinforcement Activities:

- (1) Prepare an activity for the Learning Center. E.g., present the child with four or five blank configuration forms and words that will fit the forms. Ask him to place the words in their forms.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g
	p40-45

(Word attack skills)

boy      boot      loop      bees      more      (etc.)

(2) Provide each child with a dittoed sheet with words and forms to match.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; lg,h



(Word attack skills)

Ability and Assessment:

B. Contextual Clues

1. To infer the appropriate word from the context of the printed sentence.

Present the following sentence on the board:

Mother gave us some cake to \_\_\_\_\_ .  
eat tea

READ THIS SENTENCE TO YOURSELF AND DECIDE WHICH WORD SHOULD BE AT THE END. NOW READ THE SENTENCE TO ME.

Content-Development Activities:

- (1) Assemble pairs of objects that are similar except for a single characteristic (size, shape, color, weight, etc.). Present one pair at a time.

I WANT YOU TO FINISH EACH SENTENCE I SAY:

THIS PENCIL IS LONG, BUT THIS ONE IS \_\_\_\_\_ .  
THIS BOOK IS LIGHT, BUT THIS ONE IS \_\_\_\_\_ .

- (2) Assemble sets of identical objects or pictures, and divide them into subsets of one and more than one. Present the subset pairs one at a time.

I WANT YOU TO FINISH EACH SENTENCE THAT I BEGIN FOR YOU.

HERE IS A BALL. HERE ARE TWO \_\_\_\_\_ .  
HERE IS A CHAIR. HERE ARE THREE \_\_\_\_\_ .  
HERE ARE FOUR BOYS. HERE IS ONE \_\_\_\_\_ .

- (3) Prepare a worksheet with picture pairs from both Activities (1) and (2). Under each pair write the appropriate incomplete statement, as in the above activities, but supply the appropriate word, plus one distractor. E.g., "This one is little, but this one is \_\_\_\_\_ ."

LOOK AT THE PICTURES. READ THE SENTENCE UNDER EACH PICTURE, PUTTING THE BETTER WORD IN THE BLANK.

pig big

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p4; 6b-q	
p3; 1a-yy	
	p37; 1g
p4; 6b-q	

(Word attack skills)

(4) Repeat assessment activity.

Reinforcement Activities:

(1) Select appropriate Learning Center and Educational Games activities.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	pp46-62 pp63-79

(Word attack skills)

Ability and Assessment:

B. Contextual Clues

2. To infer the appropriate pronunciation of a word, using its surrounding context as clues.

Present the following sentences on the board:

The boy had a tear in his eye.  
The boy had a tear in his coat.

READ THESE SENTENCES TO YOURSELF. NOW READ THEM TO ME.

<u>Task Analysis</u>	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	conceptual
Out: vocal verbal	recall (memory)

Content-Development Activities:

- (1) Present a picture of a boy with a large tear drop in one eye, and wearing a torn coat. Write the same two sentences, as in the assessment beside the picture.

DRAW A LINE FROM EACH SENTENCE TO THE PART OF THE PICTURE IT TELLS ABOUT.

Task Analysis

Memory = Awareness

- (2) Present the same two sentences on the board, without the picture.

EACH SENTENCE HAS THIS WORD (Point) T-E-A-R IN IT. IN ONE SENTENCE IT'S PRONOUNCED "TEER," AND IN THE OTHER IT'S PRONOUNCED "TARE." LOOK AT THEM. NOW READ THEM TO ME.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
pp3,4; lg-lyy p4; 2 p6; 13-20	

(Word attack skills)

(3) Present other words that are spelled alike but whose pronunciation and/or meaning varies as a function of the context.

Task Analysis

Memory = Recognition

(4) Repeat assessment activity.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Word attack skills)

Ability and Assessment:  C. <u>Structural Analysis</u>  1. <u>To identify root words.</u>  Present a worksheet with the following words in a column: walking, talked, climbing, drops, wants, pushes, drinking.  ON THE LINE BESIDE EACH WORD, WRITE ITS ROOT WORD.  <div>Task Analysis</div> <p>The cognitive level is conceptual, as the student must sort the word parts into root words and (by implication) nonroot words: Coding demands are obviously present here, but they are subsumed by the high level conceptual demands. The memory demand here is recognition.</p> <div>Content-Development Activities:</div> <p>(1) HERE ARE SOME WORDS. DRAW A LINE THROUGH THE LETTERS I-N-G IN EACH WORD IN COLUMN 2.</p> <table><tr><td>1</td><td>2</td></tr><tr><td>go</td><td>going</td></tr><tr><td>walk</td><td>walking</td></tr><tr><td>look</td><td>looking</td></tr><tr><td>talk</td><td>talking</td></tr></table> <p>YOU CAN SEE THAT THE WORDS IN COLUMN 2 ARE NOW THE SAME AS THOSE IN COLUMN 1. HOW DID WE MAKE THEM THE SAME? . . . YES, WE TOOK THE ENDINGS OFF THE WORDS IN COLUMN 2, AND NOW WE ARE BACK TO THE ROOT WORDS. WHAT ARE THEY CALLED? . . . THAT'S RIGHT, ROOT WORDS.</p> <p>(2) HERE ARE SOME WORDS. MAKE THE WORDS IN THE SECOND COLUMN BACK INTO ROOT WORDS LIKE THOSE IN THE FIRST COLUMN BY CROSSING OUT THEIR ENDINGS.</p>	1	2	go	going	walk	walking	look	looking	talk	talking	TEACHER TIPS	
	1	2										
	go	going										
walk	walking											
look	looking											
talk	talking											
Teaching Resources	Teaching Strategies											
p6; 12-20 p5; 6c-s p3; 1g-mn		p40-45										
	p5; 6c-s											

(Word attack skills)

1  
look  
jump  
walk  
talk  
want  
push

2  
looking  
jumped  
walking  
talks  
wants  
pushes

Task Analysis	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	conceptual
Out: motor nonverbal	awareness

(3) HERE ARE SOME WORDS. TURN THEM BACK INTO THEIR ROOT WORDS BY CROSSING OUT THEIR ENDINGS.

dewing    doing    ended    starts    eating    reads

Task Analysis	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	conceptual
Out: motor nonverbal	recall

(4) NOW I'M GOING TO SAY SOME WORDS. THEY ALL HAVE ENDINGS ADDED TO THEM. LISTEN TO EACH WORD AS I SAY IT, AND WRITE ITS ROOT WORD.

looking    walked    wants    jumping    talked

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Word attack skills)

TEACHER TIPS	
Teaching Resources	Teaching Strategies

Task Analysis	
Process	Cognition
In: auditory verbal	coding
Out: motor verbal	recall

Note the difference between the coding demand and the conceptual demand of the original activity. In the original activity, the student was given a rule to follow. Here, he is told each word individually.

(5) HERE IS A PAPER WITH BLANK LINES NUMBERED FROM ONE TO TEN. I'M GOING TO SAY SOME WORDS. SOME ARE JUST ROOT WORDS, AND SOME ARE ROOT WORDS WITH ENDINGS. WHEN YOU HEAR A ROOT WORD WITH AN ENDING, MAKE A CHECK BESIDE THAT NUMBER. NUMBER 1: WANTED . . . .

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: motor nonverbal	awareness

(6) HERE IS ANOTHER NUMBERED PAPER. I'M GOING TO SAY SOME WORDS. SOME ARE JUST ROOT WORDS, AND SOME ARE ROOT WORDS WITH ENDINGS. WHEN YOU HEAR A ROOT WORD WITH AN ENDING, WRITE THE WHOLE WORD BESIDE THAT NUMBER. NUMBER 1 . . . .

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: motor verbal	awareness

(7) THINK OF FOUR ROOT WORDS AND WRITE THEM, EACH WITH AN ENDING ON THE BACK OF THIS PAPER (TURN IT OVER).

Note: Follow the above content-development sequence in teaching about prefixes.

p37; 1g,h

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

2. To recognize singular and plural nouns.

Prepare a sheet containing pictures of single objects and multiple objects (e.g., car, trucks). Under each picture place both the singular and plural forms of the word. Use only nouns which simply take an s for their plural forms.

UNDER EACH PICTURE ARE TWO WORDS. LOOK AT EACH PICTURE. CIRCLE THE WORD THAT TELLS BEST WHAT IS IN IT. (Later, repeat with es: dishes, boxes, peaches, churches, etc.)

Task Analysis

Process

Cognition

In: visual verbal  
visual nonverbal  
Out: motor nonverbal

conceptual  
recognition

Content-Development Activities:

(1) AS I SHOW THINGS IN THE ROOM, TELL ME IF I AM SHOWING ONE OR MORE THAN ONE.

(Use only objects which simply take an s for their plural forms.) Hold up one pencil, then two pencils, one book, then two books, etc.

(2) HERE ARE TWO PICTURES OF ANIMALS. AS I SHOW THEM TO YOU, TELL ME IF THERE IS ONE ANIMAL, OR MORE THAN ONE.

(3) Repeat with three, four, and five pictures.

(4) HERE ARE FIVE WORDS (written on the board). AS I SAY EACH WORD, TELL ME IF THE WORD SAYS ONE OR MORE THAN ONE.

(5) WHEN THERE ARE MORE THAN ONE, WE SOMETIMES ADD s TO THE WORD. HERE ARE THREE PICTURES. UNDER EACH PICTURE ARE TWO WORDS. CIRCLE THE WORD I NAME.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 12-20 p5; 6e-s p3; 1g-s	p40-45
	p40-45



(Word attack skills)

TEACHER TIPS									
Teaching Resources	Teaching Strategies								
<p>(6) HERE ARE SOME WORDS PRINTED ON THIS SHEET OF PAPER. DRAW A CIRCLE AROUND ALL WORDS THAT MEAN MORE THAN ONE.</p> <p>(7) Present dittoed worksheets of simple sentences of words in the child's vocabulary.</p> <p>HERE ARE SOME SENTENCES. DRAW A LINE UNDER ALL WORDS THAT MEAN MORE THAN ONE.</p> <p>(8) WHEN WE HAVE MORE THAN ONE OF A THING WE OFTEN ADD S TO ITS NAME. WATCH EACH PICTURE AND LISTEN AS I SAY ITS NAME. HERE IS A DOG; HERE ARE SOME DOGS. HERE IS A BOY; HERE ARE SOME BOYS. . . . LISTEN: DOG, DOGS; BOOK, BOOKS. . . . NOW I'M GOING TO SHOW YOU SOME MORE PICTURES. IF A PICTURE IS ONLY OF ONE YOU SAY ITS NAME; IF IT'S OF MORE THAN ONE, SAY ITS NAME WITH (SSS) AT THE END.</p> <p>(9) IN EACH BOX THERE ARE TWO PICTURES (singular and plural). DRAW A CIRCLE AROUND THE PICTURE I NAME.</p> <table><tr><th colspan="2">Task Analysis</th></tr><tr><th>Process</th><th>Cognition</th></tr><tr><td>In: visual nonverbal auditory verbal</td><td>conceptual recognition</td></tr><tr><td>Out: motor nonverbal</td><td></td></tr></table> <p>(10) IN EACH BOX THERE ARE TWO PICTURES. UNDER EACH PICTURE IS A WORD THAT TELLS ABOUT IT. DRAW A CIRCLE AROUND THE WORD I NAME.</p> <p>Use ditto sheets or write singular and plural words on the board.</p> <p>(11) ON EACH LINE THERE ARE TWO WORDS (singular and plural). LISTEN, AND DRAW A CIRCLE AROUND THE WORD I NAME.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Play a game. Divide the class into two groups. Give class members cards on which singular and plural nouns are printed.</p>	Task Analysis		Process	Cognition	In: visual nonverbal auditory verbal	conceptual recognition	Out: motor nonverbal		p40-45
Task Analysis									
Process	Cognition								
In: visual nonverbal auditory verbal	conceptual recognition								
Out: motor nonverbal									
	p63-79								

(Word attack skills)

AS I NAME A WORD HOLD YOUR CARD WITH THE WORD ABOVE YOUR HEAD. THE GROUP WITH THE MOST RIGHT ANSWERS WINS THE GAME.

(2) Use words printed on the cards for activity 1. Give each child one or two cards. Play a matching game.

HERE ARE 10 WORDS PRINTED ON THE BOARD. COME TO THE BOARD AND PLACE YOUR CARD NEXT TO THE WORD JUST LIKE IT AND CALL ITS NAME.

(3) Staple or tape six pictures on the bulletin board or tape to chalkboard. Have class members come to board and place cards under pictures.

MATCH YOUR WORD CARD WITH THE PICTURE ON THE BULLETIN BOARD.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 19,h

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

3. To classify "-ing" verb endings.

Present these words on the board: falling, looking, seeing, doing, crying, marking.  
READ THESE WORDS TO ME. TELL ME HOW THEY LOOK ALIKE. TELL ME HOW THEY SOUND ALIKE.

Task Analysis	
Process	Cognition
In: visual verbal	conceptual
Out: vocal verbal	awareness

Content-Development Activities:

- (1) WATCH ME AND TELL ME WHAT I AM GOING. YES, I AM WALKING, JUMPING, LOOKING.
- (2) LOOK AT THESE WORDS ON THE BOARD (walk, jump, look). NOW TELL ME WHAT I CAN DO TO MAKE THEM SAY ING. YES, I WRITE I-N-G AT THE END OF THE WORD.
- (3) Provide each child with a list of ing and other words (10-15 words).  
LOOK AT THE WORDS ON YOUR PAPER. CIRCLE ALL THE WORDS ON YOUR PAPER WHICH END IN ING.
- (4) Use the same word list which the child used in the above exercise.  
AS I POINT TO A WORD ON YOUR PAPER, SAY ITS NAME.
- (5) LISTEN TO THESE WORDS AND TELL ME HOW THEY ARE ALIKE: MARKING, RIDING, SEEING, ETC. LISTEN TO THE WORDS AGAIN AND TELL ME WHETHER YOU HEAR THE ING SOUND. {Teacher: Don't spell it, say it.) YES, THEY ALL SAY ING AT THE END.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p5; 6h-s p3; 1g-tt	p40-45
p6; 12-20	
p3; 1s-ww	p37; 1g,h

(Word attack skills)

(6) I AM GOING TO READ SOME SENTENCES. LISTEN, AND TELL ME WHAT IS WRONG WITH THE SENTENCE AND HOW THE SENTENCE CAN BE CHANGED TO MAKE IT RIGHT.

Examples: We are go to read. John is play marbles. He is read a book.

Read one sentence at a time and permit the pupils to answer. Work in small groups of three or four

(7) THERE ARE SOME CARDS ON THE TABLE. COME TO THE TABLE, FIND ALL THE CARDS WITH WORDS THAT HAVE ING AT THE END. SAY THE NAME OF THE WORD.

(8) Present the following sentences on a worksheet. Tell the student to read each sentence and circle the correct word.

(a) The girl was <sup>walking</sup> walk down the street. (b) She was <sup>jumped</sup> jumping up and down.  
walked jump

(c) The girls were <sup>looked</sup> look at her.  
looking

Task Analysis

cognition = conceptual-  
evaluation

Reinforcement Activities:

(1) Play a game in which one child acting as the teacher says a sentence using a root word ending in ing and then whispers someone's name. (The other children should be blindfolded.) The child whose name is whispered must repeat only the ing word heard in the sentence. Give each child an opportunity to be the teacher.

(2) Repeat the game but require the child to recognize visually the word that you print on the board.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 1g,h p37; 2k
	p63-79

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

8. To classify "-ed" verb endings.

Present the following words on the board:

looked    jumped    stamped    danced    bumped

Note: All these words end with the t sound; do not use words such as played, opened, or noted at this time.

READ THESE WORDS TO ME. HOW DO THEY LOOK ALIKE? HOW DO THEY SOUND ALIKE?

Content-Development Activities:

(1) JOHNNY, JUMP WITH ME. NOW, WHAT DID JOHNNY DO? YES, HE JUMPED WITH ME.

(2) ON THIS PAPER THERE ARE SOME WORDS. CIRCLE THE WORDS WITH ED ENDINGS. READ THE WORDS YOU HAVE CIRCLED TO ME.

(3) READ EACH SENTENCE AND WRITE IN THE MISSING WORD PART.

Stamp your feet.                    He stamp\_\_ his feet.  
Touch your arm.                    I touch\_\_ my arm.  
Look at the door.                    She look\_\_ at the door.

(4) NOW, READ THE SENTENCES TO ME.

Repeat, with other words.

(5) HERE ARE SOME CARDS WITH WORDS PRINTED ON THEM. FIND ALL THE WORDS ENDING IN ED.

(6) NOW, WRITE THE WORDS ON THIS PAPER. (Words used in above activity.)

(7) NOW, TURN YOUR PAPER OVER. MAKE UP THREE ED SENTENCES OF YOUR OWN USING LOOK, TOUCH, JUMP.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p5; 6k-s p3; lli-yy	
	p37; lq,h

(Word attack skills)

Reinforcement Activities:

(1) WE ARE GOING TO PLAY TIC-TAC-TOE. AS I SAY A WORD, LOOK TO SEE IF IT IS IN ONE OF YOUR BOXES.  
IF IT IS, CROSS IT OUT.

Give an example on the board showing how to play and how a child wins.

Example:	looked	clicked	talked
	talk	looked	danced
	danced	babe	looked

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
p4; 6a		

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

9. To read contractions.

Present the following on the board:

- (1) ... a nice day today.
  - (2) Tell me when you're coming.
  - (3) It isn't time to go.
- (4) The boys aren't here yet.  
(5) She'll come later.  
(6) I can't do it now.

READ THESE TO ME

Content-Development Activities:

- (1) LISTEN AS I SAY SOME WORDS (IT IS, IT'S). DID YOU HEAR IT'S FIRST OR LAST? YES, YOU HEARD IT'S LAST.

Note: Repeat with other words on the list.

- (2) Demonstrate this activity on the board.

ON THE SHEET OF PAPER ARE TWO LISTS OF WORDS. ONE LIST HAS TWO WORDS, THE OTHER HAS ONE. LOOK FOR THE WORD IN ONE LIST THAT MEANS THE SAME AS TWO WORDS IN THE OTHER, AND DRAW A LINE BETWEEN THEM.

you are	aren't
is not	isn't
are not	it's
were not	weren't
it is	you're

- (3) HERE IS A PAPER WITH NUMBERED LINES. WRITE THE WORDS I SAY ON EACH LINE. NUMBER ONE: ISN'T.  
NUMBER 2: . . .

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p3; ltt-vv p5; 6k	p40-45
	p40-45

(Word attack skills)

Task Analysis			TEACHER TIPS	
Process	In: auditory verbal Out: motor verbal	Cognition coding recall	Teaching Resources	Teaching Strategies
<p>Write a few examples on the board and erase the examples before proceeding with the above exercise.</p> <p>(4) HERE ARE SOME CARDS ON THE TABLE. FIND THE CARD THAT HAS TWO WORDS AND THEN FIND THE ONE WORD THAT MEANS THE SAME. (Example: <u>it is--it's.</u>) READ BOTH CARDS TO ME.</p> <p>(5) NOW, WE ARE GOING TO USE THE WORD CARDS IN A DIFFERENT WAY. WHEN I SAY "ISN'T," FIND THE CARD THAT SAYS "IS NOT."</p> <p>Repeat this exercise with other contractions.</p> <p>(6) LISTEN: "I WILL SEE YOU LATER." "I'LL SEE YOU LATER." HOW ARE THOSE TWO SENTENCES DIFFERENT? LISTEN WHILE I SAY THEM AGAIN. (Repeat) HOW ARE THEY DIFFERENT?</p> <p>(7) "I'LL" IS A SHORTER WAY OF SAYING "I WILL." LISTEN, AND EVERY TIME YOU HEAR ME SAY "I'LL," RAISE YOUR HAND: I WILL, I WILL, I'LL, I'LL, I WILL, I'LL . . .</p> <p>(8) Write "I'll" and "I will" on the board.</p> <p>THIS IS "I WILL." THIS IS "I'LL." WHAT IS THIS? (I'LL) WHAT IS THIS? (I WILL) WE CAN HEAR THAT "I'LL" IS A SHORTER WAY OF SAYING "I WILL." NOW WE CAN SEE THAT "I'LL" IS A SHORTER WAY OF WRITING IT, TOO.</p> <p>(9) I'M GOING TO LEAVE THESE WORDS ON THE BOARD. HERE IS A SHEET OF PAPER WITH BLANK LINES NUMBERED FROM ONE TO TEN. I'M GOING TO SAY "I'LL" OR "I WILL," AND YOU ARE TO WRITE WHAT I SAY ON EACH BLANK LINE. NUMBER ONE: I'LL . . .</p> <p>(10) NOW, I'M GOING TO ERASE THE BOARD. HERE IS ANOTHER PAPER WITH NUMBERED LINES. WRITE THE WORDS I SAY ON EACH LINE. NUMBER ONE: I'LL . . .</p>				p37; 1g,h



(Word attack skills)

(11) ON THIS PAPER EACH SENTENCE HAS ITS FIRST WORD MISSING. READ EACH SENTENCE AND IF YOU THINK "I'LL" WOULD MAKE SENSE AT THE BEGINNING WRITE IT ON THE BLANK LINE.

- \_\_\_\_\_ come with you.
- \_\_\_\_\_ be there soon.
- \_\_\_\_\_ a black cat.
- \_\_\_\_\_ see you later.
- \_\_\_\_\_ big long car.

NOW YOU READ THE "I'LL" SENTENCES TO US.

(12) HERE'S ANOTHER SHEET OF PAPER. TAKE EVERY SENTENCE YOU'VE WRITTEN "I'LL" IN FRONT OF, AND WRITE THE WHOLE SENTENCE ON THIS PAPER, BUT THIS TIME INSTEAD OF "I'LL," WRITE "I WILL." NOW READ YOUR SENTENCES TO US.

(13) NOW TURN YOUR PAPER OVER. MAKE UP TWO SENTENCES OF YOUR OWN, USING "I'LL." WRITE THEM ON THIS PAPER.

Note: Repeat this sequence for the other contraction forms.

Reinforcement Activity:

Present a lotto or bingo type game. As words are called, the children cover them with small counters until a vertical, horizontal, or diagonal row is filled.

WE ARE GOING TO PLAY A GAME. AS I SAY THE WORD, PLACE A SMALL COUNTER OVER THE WORD.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p3; ltt-yy p5; h-w	p40-45

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

10. To identify syllables within words.

Present the following on the board:

into cannot going farmer woman almost today after workbook garden  
GO TO THE BOARD AND LOOK AT EACH WORD: READ IT AND THEN DRAW AN UP-AND-DOWN LINE BETWEEN THE SYLLABLES.

Content-Development Activities:

- (1) PUT YOUR FINGERTIPS UNDER YOUR CHIN AND SAY, "ALMOST." HOW MANY TIMES DID YOU FEEL YOUR CHIN MOVE? YES, IT MOVED TWICE, ONCE FOR EACH SYLLABLE. NOW PUT YOUR FINGERTIPS UNDER YOUR CHIN AND SAY "POTATO," . . . . .
- (2) LISTEN FOR THE NUMBER OF SYLLABLES IN THIS WORD: "GARDEN." NOW, YOU SAY THE WORD; THEN TELL ME HOW MANY SYLLABLES ARE IN IT.
- (3) LOOK AT THIS WORD (WORKBOOK) BUT DON'T SAY IT OUT LOUD. SAY IT TO YOURSELF, AND THEN TELL ME HOW MANY SYLLABLES IT HAS.

Reinforcement Activities:

- (1) Use a dictionary exercise. Give pupils a list of words with more than one syllable. Have them find the words in the dictionary, and write them on a sheet of paper indicating syllabic marks.
- (2) Prepare appropriate exercises for games and Learning Centers.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p5; 6k-s	p40-45
p6; 12-20	
p4; 11f-yy	

(Word attack skills)

Ability and Assessment:

C. Structural Analysis

11. To recognize compound words.

Present compound words as two separate words; e.g., cow, boy; snow, man; base, ball; foot, ball.  
HERE ARE SOME UNFINISHED SENTENCES. LOOK AT THESE ROOT WORDS. MAKE ONE NEW WORD TO FINISH EACH SENTENCE.

- (1) I can hit the \_\_\_\_\_. (baseball)
- (2) I can kick the \_\_\_\_\_. (football)
- (3) The boy with a rope is a \_\_\_\_\_. (cowboy)
- (4) Last winter we made a \_\_\_\_\_. (snowman)

Content-Development Activities:

- (1) Prepare a word-recognition sheet as below:

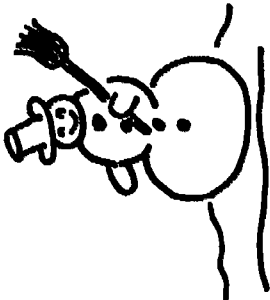
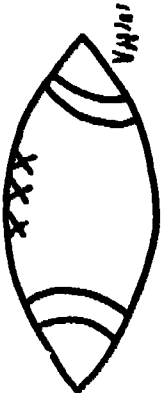


1. with snow see	2. cat some cow	3. box boy that	4. made at man
------------------------	-----------------------	-----------------------	----------------------

(etc.)

- LOOK AT BOX #1. FIND "SNOW" AND DRAW A LINE AROUND IT. LOOK AT BOX #2. FIND "COW" AND DRAW A LINE AROUND IT (etc.).
- (2) Print each of the above compound words on a separate flashcard. Give them to the student, with a pair of scissors.  
EACH OF THESE WORDS IS MADE UP OF TWO SMALLER WORDS. SEE, "SNOWMAN" IS "SNOW" AND "MAN." I'M GOING TO CUT THEM APART INTO THE SMALLER WORDS. NOW YOU DO THE SAME WITH THE REST OF THESE WORDS.
- (3) Present the attached worksheet (next page).  
LOOK AT THE WORDS BESIDE EACH PICTURE. FIND TWO SMALL WORDS THAT YOU CAN PUT TOGETHER INTO ONE BIG WORD THAT TELLS ABOUT THE PICTURE, AND WRITE THE BIG WORD ON THE LINE.
- (4) Repeat assessment activity.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 12-20	p66; 4 p40-45
p6; 12-20	p37; 19,h
	p37; 19,h

(Word attack skills)

 <p>snow day man saw</p>	 <p>fun ball boot foot</p>
 <p>fire cow boy pop</p>	 <p>boy ball box base</p>

(Word attack skills)

Ability and Assessment:

D. Phonic Analysis

Initial consonants

1. To code the sound of "f" with printed words beginning with "f." (Use this format with all initial consonants.)

Beside a picture of a fox write the words:

foot	dog	fence	fall	door	fair
many	deer	fire	dance	fog	mother

LOOK AT THE FOX. SAY "FOX" TO YOURSELF. UNDERLINE EVERY WORD THAT BEGINS LIKE "FOX."

Content-Development Activities:

- (1) Assemble a set of objects or pictures, each of which begins with the sound and letter of "f."

TELL ME THE NAME OF EACH THING HERE.

Task Analysis\*

Each object presents a perceptual task.

LISTEN WHILE I REPEAT THEIR NAMES. NOW DO THEY ALL SOUND ALIKE?

Task Analysis

This is a conceptual-classification task.

\*Note: Refer to Task Analysis in Part I.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 10 p8; 33	
p7; 21,23	
	p65; 3 p'0-45

(Word attack skills)

(2) Repeat material in (1), but place the name of each object beside it.

TELL US THE NAMES OF THESE THINGS AGAIN. NOW TELL US HOW ALL THE NAMES LOOK ALIKE.

Task Analysis

This is a conceptual-classification task.

(3) LOOK AT THE LETTER F. WHAT SOUND DO WE MAKE WHEN WE SAY IT?

Task Analysis

This is a coding task, linking the successful classification of auditory and visual inputs.

(4) LISTEN TO THESE WORDS: FOX, FUND, FIRE, FOOLISH, FENCE. WHAT LETTER DO THEY BEGIN WITH?

Task Analysis

This is a conceptual-classification task, based on the successful development of a coding skill.

(5) Repeat assessment activity.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Word attack skills)

Ability and Assessment:

D. Phonic Analysis

Consonant digraphs

2. To read words beginning with the digraph "sh." (Use this format with all digraphs.)

Present the following sentences on the board, and tell the student to read them to you.

The door is shut. Here is a shell. The sheet is on the bed. This is a big ship.

Content-Development Activities:

- (1) Present the following words on the chalkboard:

she shall shell ship shot sheet shape shop show

HOW DO THESE WORDS LOOK ALIKE? THAT'S RIGHT. NOW GO TO THE CHALKBOARD AND UNDERLINE THE PARTS THAT ARE ALIKE.

LISTEN WHILE I READ THE WORDS, BECAUSE I WANT YOU TO TELL ME HOW THEY SOUND ALIKE. (Read them.) HOW DO THEY SOUND ALIKE?

- (2) Prepare a worksheet. Refer to the following page.

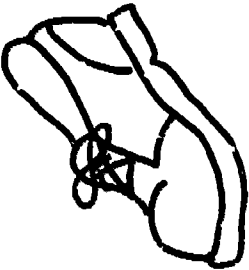
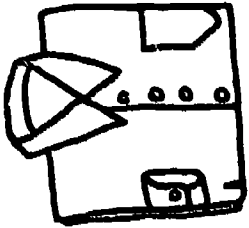

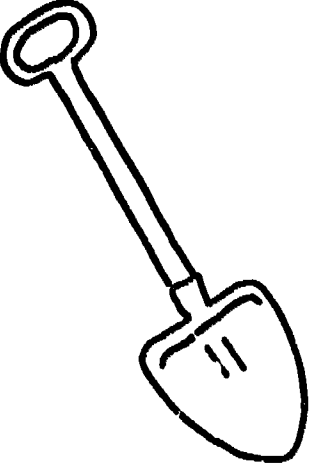


LOOK AT EACH PICTURE. IF IT BEGINS WITH THE SH SOUND, WRITE THE LETTERS SH AT THE BEGINNING OF THE WORD. IF IT DOESN'T BEGIN WITH THE SH SOUND, DON'T WRITE ANYTHING.

- (3) See Speech-to-Print Phonics, pp. 51-52.

(4) Repeat assessment activity.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p7; 21, 23	
p6; 10	
	p40-45
	p37; 19,h
p7; 23	

(Word attack skills)

__oe	__irt	__at
		
		
__ovel	__ip	__ells



## (Word attack skills)

Ability and Assessment:D. Phonic AnalysisConsonant blends

3. To match the "s" blends ("sp," "sk," "st") with pictures that begin with those sounds. (Use this format for all blends.)

Print the letters "sp" on the board. Present a worksheet with the following pictures: a spear, a spider, a spike, a spoon, a star, a spur, a saddle, scissors, a STOP sign, a sock, the numeral 6.

HERE ARE THE LETTERS "SP" ON THE BOARD. LOOK AT YOUR PAPER. WRITE THESE LETTERS BESIDE EVERY PICTURE WHOSE NAME BEGINS WITH "SP."

Content-Development Activities:

- (1) LOOK AT THESE WORDS. HOW ARE THEY ALL ALIKE? YES, THEY ALL BEGIN WITH "SP." LOOK AT THE WORDS AND I WILL READ THEM TO YOU: SPANK, SPEND, SPENT, SPECK, SPILL, SPOT, SPUN. READ THEM TO ME.

- (2) HERE ARE SOME WORDS THAT BEGIN WITH "SK": SKIN, SKIP, SKUNK. READ THE WORD I POINT TO.

Task AnalysisProcess

In: visual verbal  
Out: vocal verbal

Cognition

coding  
recall

- (3) WE HAVE LEARNED WORDS THAT BEGIN WITH "SP" AND "SK." NOW WE ARE GOING TO LEARN WORDS THAT BEGIN WITH "S" AND ANOTHER LETTER. HERE ARE THE WORDS. WHAT IS THE OTHER LETTER? YES, "W" IS THE LETTER. LISTEN WHILE I READ THE WORDS TO YOU: SWIM, SWING. READ THIS WORD TO ME. NOW READ THIS ONE TO ME.

- (4) WE HAVE ONE MORE SET OF WORDS TO LEARN THAT BEGINS WITH "S" AND ANOTHER SOUND. HERE IS THE OTHER LETTER. TELL ME WHICH ONE IT IS. YES, IT IS A "T." LISTEN AND WATCH WHILE I READ THE WORDS TO YOU. THEY ARE: STAND, STACK, STEM, STEP, STIFF, STICK, STILL, STITCH, STOP, STUCK.

R 59

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 10 p7; 23  p3; tt-yy	   p40-45   p65; 3

(Word attack skills)

Reinforcement Activities:

- (1) Play a game in which the "sp" sound is used.
- (2) Make up short stories using "s"-blend words. Have the child read them and draw pictures to go with them.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	

(Word attack skills)

Ability and Assessment:

D. Phonic Analysis

Short vowel sounds

10. To read words containing the short vowel sounds (for example, the short vowel sound "a").

Present the following sentences on the board:

- (1) The rat is back at camp.
- (2) She sat with a fan in her hand.
- (3) The flag with the black band is on the stand.

READ THESE TO ME.

Task Analysis	
Process	Cognition

In: visual verbal  
Out: vocal verbal  
perceptual-coding  
recall

Content-Development Activities:

(1) HERE IS A SMALL WORD. IT IS "AT." "A-T" SPELLS "AT." READ THE WORD TO ME. WE CAN MAKE NEW WORDS IF WE PUT LETTERS IN FRONT OF OUR WORD. HERE ARE SOME NEW WORDS: CAT, NAT, FAT, MAT, HAT, SAT. (These should be printed on flashcards.) I AM GOING TO MIX OUR "AT" WORDS UP. LET'S SEE IF YOU CAN READ THEM TO ME.

Task Analysis	
Process	Cognition

In: visual verbal  
Out: vocal verbal  
coding  
recall

(2) HERE IS ANOTHER SMALL WORD. IT IS "AN." IT IS SOMETHING LIKE "AT" BUT IT HAS AN "N" AT THE END INSTEAD OF A "T." READ THE WORD FOR ME. WE CAN MAKE NEW WORDS IF WE PUT LETTERS BEFORE THIS WORD. HERE ARE SOME WORDS WE CAN MAKE: MAN, DAN, RAN, CAN, FAN, VAN, PAN. NOW YOU READ THESE WORDS FOR ME.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 10 p7; 23	p40-45
p5; 6e-m p7; 23	



(Word attack skills)

- (3) WE HAVE LEARNED SOME WORDS. LET'S SEE IF WE CAN PUT SOME OF THEM TOGETHER AND READ THEM. READ THIS: NAT IS A FAT CAT. DAN RAN TO PAT FAT NAT.
- (4) HERE IS "BAD." LET'S SPELL AND READ IT. WE CAN MAKE WORDS THAT RHYME WITH "BAD" IF WE CHANGE THE FIRST LETTERS. WE GET SAD, HAD, PAD, MAD. NOW IT'S YOUR TURN TO READ THEM.
- (5) LET'S MAKE SOME SENTENCES USING OUR OLD WORDS AND OUR NEW WORDS. READ THEM FOR ME. DAN IS MAD. PAT HAD A CAT. THE SAD CAT IS FAT.
- (6) HERE IS THE LAST SET OF OUR SHORT "A" WORDS. THEY ARE BAG, RAG, WAG, AND TAG. READ THEM FOR ME.
- (7) LET'S PUT SOME WORDS TOGETHER. WE WILL USE SOME OF EACH KIND OF SHORT "A" WORDS. CAN YOU READ THE SENTENCES FOR ME? DAN HAD A BAG. A RAG IS IN THE BAG. THE CAT HAS THE RAG. DAN IS MAD.
- (8) HERE ARE SOME PICTURES. WHAT IS THIS? YES, A CAT. THE WORD UNDER THE PICTURE SAYS CAT. WHAT ELSE DO YOU SEE? YES, A MAN AND A RAG. CAN YOU READ THE WORDS UNDER THE PICTURES? HERE IS A BOY WHO IS BEING BAD. READ THE WORD UNDER THIS PICTURE. WHAT DO YOU SEE IN THIS PICTURE? READ THE WORDS UNDER IT. (The man pats the cat.) READ THE WORDS UNDER THE LAST PICTURE. (The man had a bag.)
- (9) HERE ARE SOME PICTURES. THEY ARE A CAT, A MAN, A RAG, AND A BOY BEING BAD. HERE ARE WORDS TO GO WITH THE PICTURES. POINT TO THE WORD CAT. POINT TO THE WORD THAT GOES WITH THE SECOND PICTURE. . . THE THIRD . . . THE FOURTH. HERE ARE TWO PICTURES AND TWO SENTENCES. POINT TO THE SENTENCE THAT GOES WITH THE FIRST PICTURE.

Reinforcement Activities:

- (1) HERE ARE ALL THE WORDS WE HAVE LEARNED WITH THE SHORT "A" SOUND. LET'S SAY THEM TOGETHER. I AM GOING TO PUT THEM IN THIS BAG AND MIX THEM UP. COME PICK A WORD. READ IT FOR US.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p3; 1h-vv	

Word attack skills

Ability and Assessment:

D. Phonic Analysis

Long vowel sounds

11. To read words containing the long vowel sounds (for example, the long "e" sound).

Give the child the following to read orally: Jan, go to the beach. We each need something to eat.  
I will meet you at the beach in fifteen minutes.

Task Analysis	
Process	Cognition

In: visual verbal	coding
Out: vocal motor	recall

Content-Development Activities:

- (1) WE HEAR THE "E" SOUND WHEN TWO "EES" WALK TOGETHER IN A WORD LIKE THIS: SEED. PUT A LINE UNDER THE TWO EE'S WALKING TOGETHER. DO YOU REMEMBER THE WORD? LISTEN AND I WILL READ TO YOU MORE WORDS WITH THE EE'S WALKING TOGETHER: FEED, NEED, BEET, SHEEP, WEEK, PEEK. NOW, YOU READ THEM TO ME.
- (2) OTHER WORDS MAKE THE "E" SOUND BUT THEY DO NOT HAVE TWO EE'S WALKING TOGETHER. SOME HAVE AN "E" AND AN "A" WALKING TOGETHER. LOOK AT THESE WORDS WHILE I READ THEM TO YOU: EAT, TREAT, SEA, REAL, HEAR, LEAP, BEACH. NOW, YOU READ THEM TO ME.
- (3) THIS STORY HAS SOME OF THE WORDS THAT WE HAVE JUST LEARNED. READ IT TO ME.

In a week we will go to the farm. Some real sheep will be there.  
We will get to feed them.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 10 p7; 23	

(Word attack skills)

Reinforcement Activities:

(1) I HAVE WRITTEN ALL THE "EE" WORDS THAT WE HAVE STUDIED ON THIS TRANSPARENCY. I WILL SAY ONE. YOU FIND IT AND PUT A LINE THROUGH IT. HERE IS THE FIRST WORD . . . .

Task Analysis	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	coding
auditory verbal	recognition
Out: motor nonverbal	

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p30

COMPREHENSION

Ability and Assessment:

2. To recognize factual information.

Prepare a True-False Worksheet such as the following, based on "A Dog Like Zippy."

- (1) Bill wanted a dog like Zippy.

(2) Zippy had three white paws.

(3) When the days turned hot,  
Henry went away to the big city.
- (4) Bill got a letter from Henry.

(5) Henry came back after school began.

(6) Bill got a dog like Zippy.

READ EACH SENTENCE. IF IT'S TRUE, DON'T DO ANYTHING TO IT. IF IT'S FALSE, DRAW A LINE THROUGH IT.

Note: Please be aware that pupil success in recognizing factual information in this one case cannot be taken as evidence that the pupil has mastery of the ability. Several similar activities should be used for several stories, or until you are fairly certain that the child has attained competency in the ability to recognize factual information.

Content-Development Activities:

- (1) Prepare a copy of the story "A Dog Like Zippy" for each child. Prepare the following fill-in worksheet based on the same story.

READ EACH SENTENCE AND FIND A WORD AT THE BOTTOM OF THE PAGE THAT WILL MAKE IT CORRECT. WRITE THE WORD ON THE BLANK LINE. YOU MAY READ THE STORY TO HELP YOU FIND THE ANSWER.

Billy wanted a dog like the one \_\_\_\_\_ had.

Henry went away to the \_\_\_\_\_.

Just before \_\_\_\_\_ began, Henry came back.

Henry

country

three

letter

Zippy

school

Zippy had \_\_\_\_\_ paws.

One day Bill got a \_\_\_\_\_.

Little Zippy looked just like \_\_\_\_\_.

(2) Repeat the above activity, but do not allow the student to look at the story while finding the correct words. This places the memory component of the activity at a recognition level rather than at an awareness level.
- | TEACHER TIPS       |                     |
|--------------------|---------------------|
| Teaching Resources | Teaching Strategies |
| p3; 1              | p40-45              |
| p5; k-q            |                     |
| p6; 12-20          |                     |
|                    | p37; 1g,h           |
- R 65

(Comprehension)

Ability and Assessment:

3. To recall facts and events in a story.

Prepare a worksheet such as the following, based on "A Dog Like Zippy."

- (1) Who said Zippy was funny looking? \_\_\_\_\_
- (2) Where did Henry go? \_\_\_\_\_
- (3) When did Bill go to Henry's house to play with Zippy? \_\_\_\_\_
- (4) Who told Bill it would take years and years? \_\_\_\_\_
- (5) Where did Bill look for a dog like Zippy? \_\_\_\_\_
- (6) When did Henry come back? \_\_\_\_\_

READ EACH QUESTION AND WRITE YOUR ANSWER ON THE LINE NEXT TO IT.

Content-Development Activities:

- (1) Repeat the above, but supply the answers in multiple-choice fashion, each surrounded by two distractors.
- (2) Print each of the following on a separate card. Put the Headings Who? When? Where? on the bulletin board and tell the student to sort the cards under the headings.

READ EACH CARD. IF IT TELLS WHO, PIN IT UNDER THE WHO? ON THE BOARD . . .

Bill	after school	a lot of people
years and years	to the country	one day
his father	she	in the newspaper
everywhere	in dog stores	at the door
to the country	some people	just before school began
they	at Henry's house	every day

- (3) Continue the above activity with When? and Where? headings.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p3; 1	p37; 1g,h
p6; 12-20	p40-45
p5; k-r	
p6; 12-20	



[Comprehension]

Ability and Assessment:

5. To recall the sequence of events in a story.

Prepare a worksheet such as the following, based on "A Dog Like Zippy."

- \_\_\_ One day Bill got a letter.
- \_\_\_ Bill looked in dog stores.
- \_\_\_ Just before school began, Henry came back.
- \_\_\_ Bill got a dog like Zippy.
- \_\_\_ Henry went away to the country.

READ THESE SENTENCES. AND NUMBER THEM IN THE ORDER THAT THEY HAPPENED IN THE STORY. PUT NUMBER 1 BY THE ONE THAT HAPPENED FIRST, ETC.

Content-Development Activities:

- (1) HERE IS A COMIC STRIP. LET'S READ IT. WHAT HAPPENED FIRST? WHAT HAPPENED NEXT? WHAT WAS THE LAST THING THAT HAPPENED?
- (2) I AM GOING TO CUT THE COMIC STRIP PICTURES APART AND MIX THEM UP. CAN YOU FIND THE ONE THAT COMES FIRST? . . . THE NEXT ONE? . . . THE LAST ONE?
- (3) HERE ARE SOME PICTURES. TOMMY IS EATING LUNCH. HE FINDS THE QUARTER. HIS MOTHER IS TELLING HIM IT IS FOR THE MOVIES. TOMMY IS LEAVING TO GO TO THE MOVIES. TELL ME WHAT HAPPENED FIRST . . . NEXT . . . LAST.
- (4) HERE ARE SOME PICTURES. TOMMY IS EATING LUNCH. HE FINDS THE QUARTER. HIS MOTHER IS TELLING HIM IT IS FOR THE MOVIES. TOMMY IS LEAVING TO GO TO THE MOVIES. POINT TO WHAT HAPPENED FIRST . . . NEXT . . . LAST.
- (5) HERE ARE SOME PICTURES OF THE STORY I TOLD. TELL ME WHAT IS HAPPENING IN EACH PICTURE. WHAT HAPPENED FIRST? . . . NEXT? . . . LAST?

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p3; 1 p6; 12-20	
p3; 1 p5; k-q	p37; 2k

(Comprehension)

Reinforcement Activities:

(1) HERE'S A "BEETLE BAILEY" FROM YESTERDAY'S STARS & STRIPES. I'VE CUT OUT EACH PICTURE SEPARATELY.  
I'LL READ THE WHOLE STRIP TO YOU.

Read the strip.

NOW TAKE THE PICTURES AND SHOW WHICH CAME FIRST . . . NEXT . . . LAST .

TEACHER TIPS		
Teaching Resources	Teaching Strategies	

(Comprehension)

Ability and Assessment:

6. To recognize the main idea of a story.

Present the following story on a worksheet or an experience chart; either have the student read it, or read it to him.

At lunch time last Saturday, Tom picked up his plate. What a surprise! His mother had hidden a quarter under it. "It's for the movies," his mother said. When Tom finished his lunch, he went off to the movies.

Write the following titles on the board. Tell the student to read them or read them to him. Have him underline the one that would make the best title for the story.

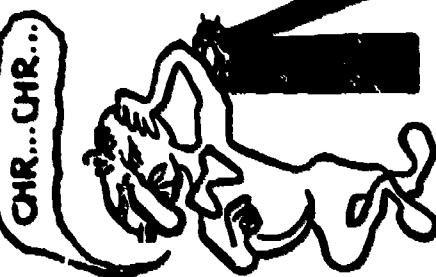
A Happy Surprise

Tom Eats His Lunch

Tom Goes to the Movies

Content-Development Activities:

- (1) **NEST STARTS WITH N!**



This story is about: a bird's nest . . . a big bird . . . the letter N.

READ THIS STORY. THEN PUT A CIRCLE AROUND THE CORRECT ANSWER.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p6; 12-20 p3; 9-yy	p40-45

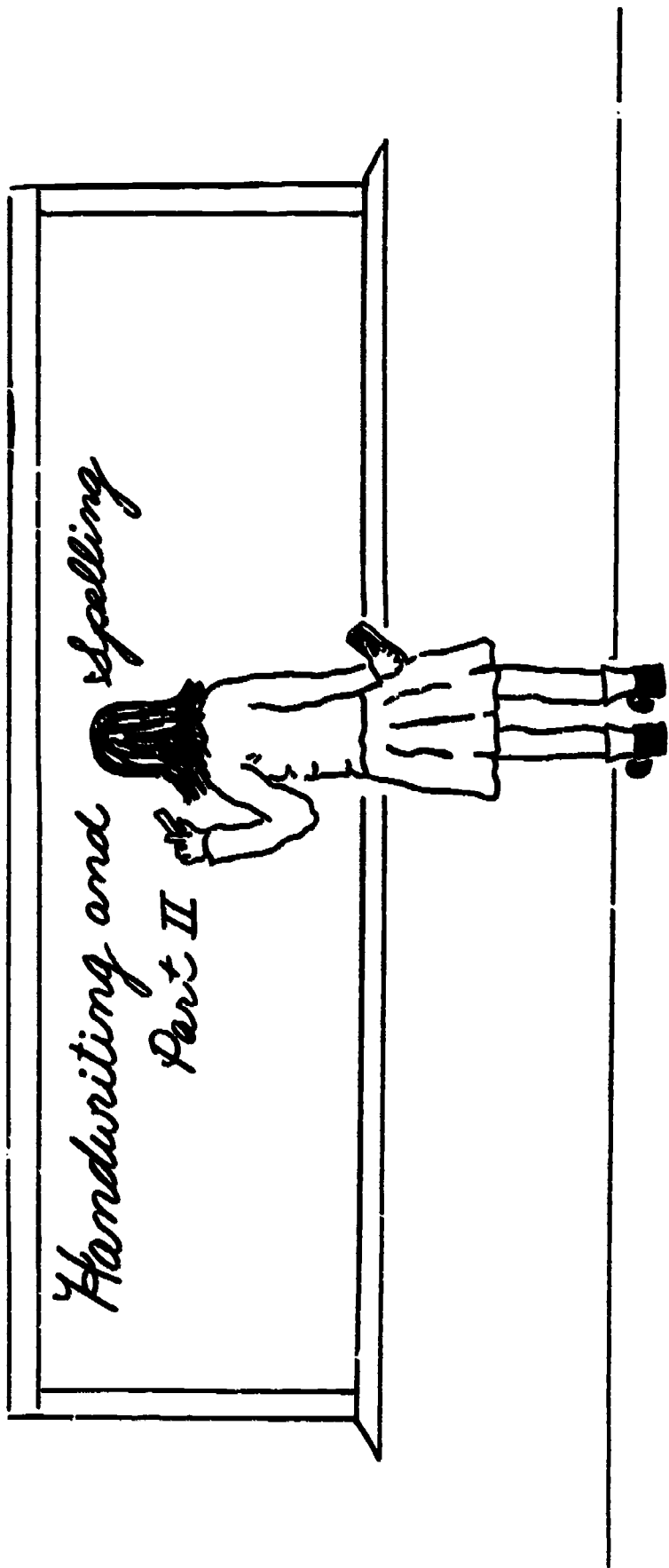
(Comprehension)

(2) Read the following poem to the students:

Neighbors are people who live on your street,  
And tell you you're noisy, or naughty, or sweet.  
They smile when you're helpful; they frown when you're bad.  
Neighbors are folks like your Mother and Dad.  
("Neighbors," by Alma Gray, We Are Neighbors, p. 24, Ginn & Co., 1964.)

LOOK AT THESE TITLES (Mother, Dad, Neighbors). I'LL READ THE POEM AGAIN, AND YOU ARE TO PUT A  
CIRCLE AROUND THE BEST TITLE.

TEACHER TIPS	
Teaching Resources	Teaching Strategies



### INTRODUCTION

The Handwriting and Spelling section is designed to develop skills in manuscript and cursive writing, and spelling. The section is divided into three subsections: Manuscript Writing, Dictionary Usage, and Cursive Writing. The abilities in the Manuscript Writing subsection are patterned after the Michigan Language Program, a comprehensive language program that the authors recommend for use in teaching manuscript writing. The Michigan Language Program offers the teacher a sequential method of teaching manuscript writing in five parts, beginning with simple line drawings and culminating in writing several words. Each step is clearly defined. The teacher can apply this method while using the content suggested by the Guide.

The Cursive Writing subsection is modeled after the cursive writing program developed in Handwriting with Write and See, by Skinner and Krakow. This method organizes the skills of cursive writing in a sequence which first considers the basic eye-hand coordination demands made by cursive writing. The sequence then develops the skills of marking needed for mastery in cursive writing. The skills progress from producing a continuous line pattern through writing simple paragraphs using cursive writing. This method uses a specific presentation procedure when teaching line patterns and letter configurations. The teacher first presents a complete model of the configuration, then presents a series of the partially completed model for the student to complete. This procedure shows the student what he is aiming for, then gives him decreasing amounts of support as he gains skill in reaching that goal. The second and third content-development activities in the ability to produce a continuous line pattern are examples of this procedure.

The authors of this Guide believe that CHILDREN SHOULD LEARN TO SPELL WORDS THAT ARE FAMILIAR AND MEANINGFUL, AND THAT SPELLING SKILLS SHOULD BE DEVELOPED WITHIN THE CONTEXT OF THE ONGOING INSTRUCTIONAL PROGRAM. Using this position as a framework the Botel series has been chosen as a basic spelling guide. This spelling approach stresses spelling mastery of the basic English consonant-vowel-consonant combinations. This approach allows the teacher to teach the spelling skills to the children within a meaningful and relevant context.

It is suggested that pupils be taught to combine their handwriting and spelling skills. Words that are written are to be legible and correctly spelled. The pupil's writing should meet the teacher's standard of legibility.

The suggested teaching activities have been chosen to serve as examples of a way the ability may be taught. These do not represent the only abilities that must be taught in any writing or spelling program. The specific content of a handwriting or spelling program should be determined by the child's needs as assessed by the teacher. When that assessment has been made, the teacher can then proceed to teach either cursive or manuscript writing using the sequence of abilities presented in this section.

GENERAL TIPS FOR TEACHING HANDWRITING\*1. To teach writing position.

## (a) Person

(1) The child should sit at desk, in comfortable upright position, desk at waist height, feet on flat surface. (Adjust height for feet by use of a book or cigar box.)

## (b) Writing implement (crayon, primary pencil, pencil)

(1) Demonstrate correct holding position. Remember pencil points over the shoulder of the writing hand.

## (c) Paper

(1) Provide good quality, clearly marked guided lined paper.

## (2) Placement

(a) Manuscript: Paper should be perpendicular to child's body.

(b) Cursive: Paper should be slanted to the left for right-handed pupils and to the right for left-handed pupils.

2. To name and write line segments.

(a) Teach straight, slanted, and curved lines through picture images, shapes (e.g., tents, balloons, flags, mountains, telephone poles, etc.). Stress left to right and top to bottom progressions.

(b) Emphasize size consistency and space placement.

---

\*Adapted from materials developed by participants in the 1972 USDESEA workshop.

## (General tips for teaching handwriting)

3. Left-handedness.

- (a) If a child has no clear dominance, encourage right-handedness, but do not force the child.
- (b) Check to determine that the positions of pencil and paper have been reversed for this child.
- (c) Set the child in a clear area, i.e., at the end of the table, next to another left-handed child, etc.

4. Perceptual differences.

- (a) Reversals (of b, d, g, p, etc.) may be corrected by color and/or line segment coding. In this situation, the child must know left and right.
  - (b) Spatial relationships: When a child has particular difficulties in connecting and placing letter segments on marked lines, suggest that the child proceed to cursive writing. Place no importance on manuscript success.
  - (c) Child with unusual problems may respond to the challenge and interest of other stimuli, i.e., spelling with a typewriter, puzzles, clay (rolled, or flat used with stylus implement), sandpaper, etc.
5. Refer to Marianne Frostig Test and Manual for figure-ground and dominance details.





ABILITIES AND ASSESSMENTS

MANUSCRIPT WRITING

1. To manipulate clay or clay-like material.

Demonstrate making clay balls, discs, and rods. Give the children the material.

MAKE THE THINGS THAT I MADE.

2. To finger-paint.

Provide children with materials. Demonstrate finger-painting.

DO WHAT I DID.

3. To hold a pencil, crayon, or water-paint brush.

SHOW HOW YOU WOULD MAKE MARKS WITH THIS.

4. To mark on a large surface using writing implements.

Provide a variety of writing implements (chalk, crayons, felt-tipped markers, large pencils, etc.) and large surfaces such as chalkboards, easels, 18 x 24 sheets of paper, etc. Demonstrate marking with each of the implements.

YOU MAKE MARKS ON THE \_\_\_\_\_ (type of surface).

5. To scribble using a writing implement.

Demonstrate scribbling using any writing implement.

MAKE MARKS ON YOUR PAPER THAT LOOK LIKE THE MARKS ON MINE.

6. To color within the general outlines of a figure.

COLOR THIS PICTURE. STAY INSIDE THE LINE.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p11; 2a	

## (Abilities and assessments)

7. To draw pictures of familiar objects.  
Show pictures of familiar objects. Choose one as a model. Point to the model.  
DRAW A PICTURE THAT LOOKS LIKE THIS PICTURE.
8. To hold a crayon or primary pencil in the writing position.  
Give the child a pencil and crayon. Demonstrate the writing position.  
HOLD YOUR PENCIL JUST THE WAY I AM HOLDING MINE.
9. To name line segments.  
Draw straight, slanted, and curved lines on the chalkboard. Point to each one.  
WHAT IS THIS LINE'S NAME?
10. To draw line segments.  
Provide each child with a writing pencil and clearly marked lined paper.  
WRITE A ROW OF (STRAIGHT, SLANTED, OR CURVED) LINES.
11. To write the letters of the alphabet in manuscript.  
Provide letters of the alphabet on a dittoed sheet or on the chalkboard to serve as a model.  
WRITE THE LETTERS ON YOUR PAPER SO THEY LOOK LIKE THE ONES I HAVE WRITTEN.
12. To write and spell in manuscript from dictated one-syllable, short-vowel-sound words.  
WRITE THE WORDS I SAY.

H/S 6

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p11; 1b,9	
H/S 12	p11; 1b,9	
H/S 14		

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
13. <u>To write sentences using one-syllable words containing letters that make the short vowel sounds.</u> <u>WRITE THE SENTENCE AND FILL IN THE MISSING WORD.</u>			
14. <u>To write and spell in manuscript from dictated words familiar to the child.</u> <u>WRITE THE WORDS THAT I SAY.</u>		p11; 3a-c	
15. <u>To write and spell in manuscript from dictated familiar verbs.</u> <u>WRITE THE WORDS THAT I SAY.</u>		p11, 3a-c	
16. <u>To write and spell in manuscript from dictated familiar prepositions.</u> <u>WRITE THE WORDS THAT I SAY.</u>		p11, 3a-c	
17. <u>To write and spell in manuscript from dictated sentences which contain one-syllable short-vowel words and one-syllable long-vowel words.</u> <u>WRITE THE SENTENCES AS I SAY THEM.</u>			
18. <u>To write his own name in manuscript.</u> <u>WRITE YOUR NAME.</u>			
19. <u>To write and spell in manuscript the names of the primary and secondary colors.</u> <u>WRITE THE NAMES OF THE COLORS THAT I SHOW YOU.</u>			
20. <u>To write and spell in manuscript from dictated common military words.</u> <u>WRITE THESE WORDS WHEN I SAY THEM.</u>		p11, 3a-c	
21. <u>To write and spell in manuscript from the dictated names of the cardinal numerals.</u> <u>WRITE THE NAMES OF THESE NUMERALS.</u>			

(Abilities and assessments)

22. To write short paragraphs in manuscript.

Show the student a short paragraph about a familiar topic.

WRITE THIS STORY ON YOUR PAPER.

DICTIONARY USAGE1. To sequence letters alphabetically.

Give the student a pile of upper- and lower-case letters of the alphabet.

PUT THE LETTERS IN ALPHABETICAL ORDER.

2. To sequence words alphabetically.

Give the student a collection of single one-syllable words, each of which starts with a different letter of the alphabet.

PUT THESE WORDS IN ALPHABETICAL ORDER STARTING WITH THE ONE WHOSE FIRST LETTER IS NEAREST TO THE BEGINNING OF THE ALPHABET.

3. To locate words in a picture dictionary.

Show pictures from a picture dictionary. Provide each child with a picture dictionary.

FIND THE WORD FOR \_\_\_\_\_ (name a picture) IN YOUR DICTIONARY.

4. To locate words in a primary dictionary.

Give the student the meaning of a word and the first letter of the word.

USE YOUR DICTIONARY TO FIND THE WORD THAT STARTS WITH \_\_\_\_\_ (the letter name) AND MEANS \_\_\_\_\_.

H/S 8

## TEACHER TIPS

Suggested  
ActivitiesTeaching  
ResourcesTeaching  
Strategies

p12; 9a

p12; 9a

p12; 9a,b

(Abilities and assessments)

5. To use the dictionary to determine the correct way to spell a word.  
Give the student a list of familiar spelling words and an appropriate dictionary.  
USE YOUR DICTIONARY TO FIND THESE WORDS.

CURSIVE WRITING

1. To identify size constancy in manuscript and cursive letters.  
LOOK AT THESE LETTERS. TELL ME IF THEY ARE THE SAME SIZE OR NOT THE SAME SIZE.
2. To locate an area on the same plan on two identical figures.  
PUT THE DOT ON THIS FIGURE IN THE SAME PLACE AS IT IS ON THE ONE THAT I WILL SHOW YOU.
3. To estimate distance between two points on a paper.  
DRAW A LINE BETWEEN THESE TWO POINTS: FROM HERE TO HERE.
4. To produce a continuous line pattern.  
DRAW YOUR LINES TO LOOK JUST LIKE MINE.
5. To complete a curved line segment (cursive letters).  
MAKE YOUR LETTER LOOK LIKE THE ONE I WILL SHOW YOU.
6. To reproduce units of legible, connected curved-line segments (cursive letter words containing no more than six letters).  
LOOK AT THESE WORDS AND COPY THEM ON YOUR PAPER.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p12; 9c	
H/S 18	p11; 2a-f	
H/S 20		
H/S 22	p11; 2a-f	
H/S 24	p11; 2a-f	

(Abilities and assessments)

7. To write and spell in cursive style from dictated familiar one-syllable words.  
AFTER I SAY EACH WORD, WRITE THAT WORD ON YOUR PAPER.
8. To maintain a specified amount of space between words written in cursive style.  
WRITE THESE WORDS IN A LINE. LEAVE ENOUGH SPACE BETWEEN EACH WORD SO THAT WE CAN TELL WHERE EACH WORD ENDS AND THE NEXT ONE BEGINS.
9. To write and spell in cursive style the dictated names of the days of the week.  
WRITE THE NAMES OF THE DAYS OF THE WEEK AS I SAY THEM TO YOU.
10. To write and spell in cursive style the dictated names of the months of the year.  
AS I SAY THE NAMES OF THE MONTHS YOU WRITE THEM ON YOUR PAPER.
11. To write and spell in cursive style the dictated names of the seasons.  
WHEN I SAY THE NAME OF THE SEASON, YOU WRITE THE NAME ON YOUR PAPER.
12. To write and spell in cursive style from dictated rhyming words containing the letters that make the diphthong sounds.  
WHEN I SAY A WORD, YOU WRITE ONE THAT RHYMES WITH THE WORD I SAY.
13. To write and spell in cursive style from dictation the pronouns: I, my, you, your, he, his, she, her, we, our, they, their.  
WHEN I SAY THESE WORDS, YOU WRITE THEM.
14. To write and spell in cursive style new words made from previously-learned root words.  
LOOK AT THE LITTLE WORDS AND ADD THESE LETTERS TO THEM TO MAKE NEW WORDS.

H/S 10

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p11; 3a-c	
	p11; 3a-c	
	p11; 3,4	p37; 2
	p11; 5	

## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
15. <u>To write and spell in cursive style words from a basic vocabulary list, i.e., a Dolch list.</u> Dictate words that are appropriate to the student's interests and are from a basic vocabulary list. WRITE THE WORDS THAT I SAY.		p17, 2a-f	
16. <u>To organize and express a series of simple ideas using cursive writing as the graphic technique.</u> WRITE A STORY ABOUT THE PICTURES THAT I WILL SHOW YOU.			



MANUSCRIPT WRITING

Ability and Assessment:

11. To write the letters of the alphabet in manuscript.

Provide letters of the alphabet on a dittoed sheet or on the chalkboard to serve as a model.

WRITE THE LETTERS ON YOUR PAPER SO THEY LOOK LIKE THE ONES I HAVE WRITTEN.

Content-Development Activities:

- (1) Make a model of the letter out of clay, wood, or sandpaper. Then copy the letter in sections cut from the same material as the model.

MAKE THIS LETTER PUZZLE LOOK JUST LIKE THE ONE NEXT TO IT.

<u>Task Analysis</u>	
<u>Process</u>	<u>Cognition</u>
In: visual verbal	perceptual
Out: motor verbal	awareness

- (2) LET YOUR FINGERS FOLLOW THE TRACK OF THE LETTER. AS YOU GO THROUGH EACH TRACK SAY THE NAME OF THE LETTER.

Have styrofoam blocks out of which the letters of the alphabet have been cut (see diagram). The child is to feel the boundaries of the cut-out.



- (3) ON THE OUTLINES OF THE LETTERS ON YOUR PAPER FOLLOW THE WAY THE ARROWS GO TO MAKE THE LETTERS.

Have a ditto worksheet. On alternate lines have the practice letters shown with arrows indicating the direction of the needed stroke. On the line below the model show the same letter in outline form. Example:



H/S 12

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p12; 10	
p12; 10	

(Manuscript Writing)

- (4) IN THE SPACES ON THE RIGHT SIDE OF YOUR PAPER, PRINT THE LETTER IN EACH ROW THAT LOOKS JUST LIKE THE LETTER ON THE LEFT SIDE OF YOUR PAPER IN THAT ROW.

Have a ditto worksheet. In the left-hand column present the model letters, followed, in each horizontal row, by the model and three other letters. On the far right-hand side of the paper have a space for the child to print his answer. Example:

j	o	s	p	j	
e	a	b	e	c	
p	z	t	p	s	
s	s	t	o	a	

Note: Two sequences of teaching the manuscript letters are recommended:

- (1) Teaching those letters that make lesser motor demands and progressing to those that make a greater motor demand. This suggested motor developmental sequence is G, Q, C, G, U, S, i, D, P, B, T, L, H, G, E, R, U, W, N, M, Z, K, X, Y, A, J. This sequence should prove effective for the child who is visually and motorically intact.
- (2) Teaching in a sequence that stresses the difference between letters. This sequence would teach, for example, i, N, T, O, X in order to decrease the confusion that a child with visual perception problems would encounter with letters that were more similar such as b, p, d. The second sequence should be chosen when the child evidences difficulty in moving through the motor-development sequence. The activities above can be used with either sequence.

Reinforcement Activities:

- (1) Have child make a card of the letters being taught. This 3x5 card should be mounted on each child's desk next to his name.
- (2) Play a matching game with letter cards. Have capital and lower case letters printed on the "bingo" card. Present corresponding letter "chips" for the children to use.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p12; 10	p37; 2 p64; 1

(Manuscript writing)Ability and Assessment:

12. To write and spell in manuscript from dictated one-syllable, short-vowel-sound words.

WRITE THE WORDS I SAY.

Content-Development Activities:

- (1) Review short vowel sounds in Auditory Motor section of guide.
- (2) Print the vowel letters on the board. Print a series of three-letter words with the vowel letter in the middle, i.e.,

a - pan  
e - men  
i - big  
o - top  
u - cup

In the next column print the word but omit the vowel letter, i.e.,

p - n  
m - n  
b - y  
t - p  
c - p

Point to each incomplete word.

WRITE THE WORD ON YOUR PAPER AS I POINT TO IT.

- (3) Make a transparency. At the top of it put an. Make five lines which replicate the ones on the child's paper. Begin each line with one of the following letters: f, p, r, m, c.

COME TO THE CHALKBOARD AND MAKE A WORD AND TELL ME THE LETTERS OF THE WORD THAT YOU MADE.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 3a-c	
p11; g	p30

(Manuscript writing)

(4) Use a transparency set up as shown:

i	
p-ll	i
h-ll	i
f-ll	i
st-ll	i

WHEN I POINT TO A WORD, YOU PUT IN THE MISSING LETTER.

(5) Give each child a ditto that has pictures of short-vowel-sound words such as: fan, man, can, pan.  
WRITE THE NAME OF THE PICTURE NEXT TO THE PICTURE.

(6) Say a five-member set of short-vowel-sound words. Make sure that each word contains a short vowel sound.

AFTER I SAY EACH WORD YOU WRITE THE LETTERS IN IT.

(7) Give each child a ditto sheet set up in nine squares with the initial and final consonant letters of short-vowel-sound words. Example:

p		t
c		t
n		t

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2f	p37: 2
p11; 3a-c	

## (Manuscript writing)

MAKE THREE WORDS ON YOUR PAPER BY PUTTING A SHORT-VOWEL-SOUND LETTER IN EACH EMPTY BOX.

Task Analysis	
Process	Cognition

In: visual verbal	coding
Out: motor verbal	recall

- (8) Place pictures of objects, the names of which contain the short vowel sounds, in a decorated box. Write the corresponding words on paper and place them in another decorated box. Call on a child to pull a picture from the picture box. Tell the other children the name of the object pictured and have them find its name in the word box.
- (9) Give children short sentences to complete. Leave the key word (from the short vowel word list) blank. Give several key words to choose from across the top of the paper.

Reinforcement Activities:

- (1) Use a ditto sheet. On the upper half, have pictures of objects, the names of which contain the short vowel sounds. On the bottom of the page have a crossword puzzle format for the students to fill in.
- (2) Play picture-word bingo. Use pictures of objects; the children will have the names of the objects on their bingo cards and chips.
- (3) Use flashcards with the picture of an object with a short-vowel-sound name on one side, and the name on the other. The child first identifies the picture, then says the name. The procedure is then reversed: the child first says the name and then sees the picture.
- (4) Give the child five pictures of objects with short-vowel-sound names. Ask him to tell you one thing about the object. Write what he tells you on the chalkboard or overhead projector. Ask the child to copy what you have written onto his paper.

H/S 16

TEACHER TIPS	
Teaching Resources	Teaching Strategies
pill; ja-c	
pill; la.g	
	p37; 2

(Manuscript writing)

The activities for this ability should be adapted and used for the following one-syllable, short-vowel-sound words:

-a-

as fast tan at  
has last man mat  
gas cast ran cat  
past fan fat

-i-

pin pig still dip  
tin big pill tip  
win dig Bill lip  
spin wig will drip

-u-

up nut  
cut but  
hut hut  
rut rut

-e-

ten pet bed  
then let red  
men set fed  
when get Ted

-o-

job top got  
rob stop hot  
Bob mop cot  
mob hop slot

TEACHER TIPS	
Teaching Resources	Teaching Strategies
pll; 3a-c	

CURSIVE WRITING

Ability and Assessment:

2. To locate an area on the same plane on two identical figures.

PUT THE DOT ON THIS FIGURE IN THE SAME PLACE AS IT IS ON THE ONE THAT I WILL SHOW YOU.

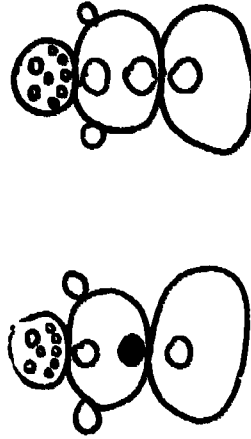
Content-Development Activities:

- (1) PUT THIS DOT ON JACK LIKE THE DOT ON FRANK.

Have two boy-girl pairs of children stand a short distance apart, boy facing boy, girl facing girl.  
Pin a colored-paper dot on the chest of one of the members of one pair.

- (2) COME TO THE CHALKBOARD AND GIVE THIS SNOWMAN A MIDDLE BUTTON JUST LIKE THE OTHER SNOWMAN HAS.

Draw a picture of two snowmen on the chalkboard, each with three buttons. On the one on the left fill in the middle button so that it is solid. On the other snowman do not fill in the middle button.



- (3) LOOK AT THESE CIRCLES. ONE HAS A DOT ON IT. I WILL ERASE THE DOT. WHO CAN FILL IN THE DOT IN THE OTHER CIRCLE?

Have two circles on the board.

Task Analysis	
Process	Cognition
In: visual nonverbal	perceptual
Out: motor nonverbal	recall

H/S 18

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2a	
p11; 2a	

(Cursive writing)

- (4) LOOK AT THE HOUSE ON THE LEFT SIDE OF YOUR PAPER. THERE IS A MOUSE IN THAT HOUSE. LOOK AT THE HOUSE ON THE RIGHT SIDE. PUT THE MOUSE IN THE SAME PLACE IN THIS HOUSE AS HE IS IN THE OTHER HOUSE.
- Provide a ditto worksheet. On the left side, draw a series of simple house outlines in which the "mouse" is located in different places in each house.
- Reinforcement Activities:
- (1) When the pupils can work independently, prepare Learning Center activities related to the ability.
- (2) Develop drill exercises similar to Content-Development Activities #2 and #4 above.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
		p37; 2,3 p47; 1



(Cursive writing)

Ability and Assessment:

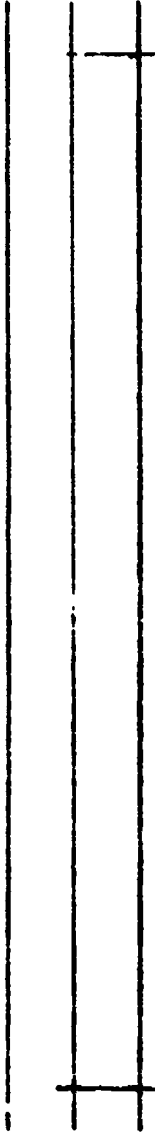
3. To estimate distance between two points on a paper.

DRAW A LINE BETWEEN THESE TWO POINTS: FROM HERE TO HERE.

Content-Development Activities:

- (1) PUT YOUR FINGER ON THIS MARK. I WILL SLIDE YOUR FINGER TO THE OTHER MARK ON YOUR PAPER.

Move the child's index finger between two vertical lines approximately 6 inches apart on lined writing paper.



- (2) WHO CAN CATCH THE FISH?

Demonstrate, using an overhead projector. Reveal a light strip two inches wide and eight inches long on the projecting table: On the left side place a stick figure of a boy; on the right side place a figure of a fish. Demonstrate to the children how the boy can catch the fish with a long enough line (a cut paper strip 1/4" x 8"). Show that with a line that's either too short or too long, the fish cannot be caught.

- (3) DRAW A LINE FROM HOME TO THE PX ON YOUR PAPER. BE SURE TO START AT HOME AND STOP AT THE PX. KEEP YOUR PENCIL ON THE PAPER UNTIL YOU GET TO THE PX.

Have a ditto worksheet for each child. On the worksheet have several "roads" between home and the PX. Example:

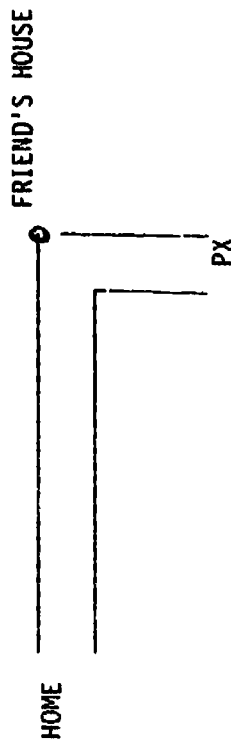


TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2a,b,f	
	p30

(Cursive writing)

(4) DRAW A LINE FROM "HOME" TO YOUR "FRIEND'S HOUSE," AND THEN DRAW A LINE FROM YOUR "FRIEND'S HOUSE" TO THE PX.

Have ditto worksheets with roads on them as in #3 above. Add a point between "home" and PX and label it Friend's House. Example:



Reinforcement Activities:

- (1) Prepare Learning Center activities related to the ability statement.
- (2) Play a game simulating various routes similar to those outlined in Content-Development Activity #3.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p47; 1

(Cursive writing)

Ability and Assessment:

4. To produce a continuous line pattern.

DRAW YOUR LINES TO LOOK JUST LIKE MINE.

Content-Development Activities:

- (1) I WILL HELP YOU DRAW A CONNECTED LINE ON THIS PAPER.

Have the child hold a marker, and guide his hand as he draws a connected line on the projecting surface of the overhead projector.

Task Analysis	
Process	Cognition

In: kinesthetic non-verbal

perceptual awareness

Out: motor non-verbal

- (2) GO FROM THIS HOUSE TO THE OTHER HOUSE. GO UP AND DOWN THE MOUNTAIN AND DO NOT STOP ON THE MOUNTAIN.

Give each child a worksheet with a large triangle on it. A small house should be on each side at the base of the mountain.

- (3) Give the child a dittoed sheet (see example). Use an overhead projector. Lay out the projecting surface so that it resembles lined writing paper. On the left, between two lines, draw three connected "mountains." On the right draw three mountains with broken lines.

Example:



DRAW LINES ON THE THREE MOUNTAINS TO MAKE THEM LOOK LIKE THESE MOUNTAINS (point to the mountains on the left).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2a-f	p37; 2

(Cursive writing)

(4) Vary the configurations of the line segments in activity #3 above. Suggested configurations:



Reinforcement Activities:

- (1) Draw various line configurations on the chalkboard. Ask the child to trace these configurations.
- (2) Var. the above activity by preparing sheets of line configurations for the child to trace or copy.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2b-f	p37; 2
	p47; 1-3 p37; 2,3

(Cursive writing)Ability and Assessment:

5. To complete a curved line segment (cursive letters).

MAKE YOUR LETTER LOOK LIKE THE ONE I WILL SHOW YOU.

Content-Development Activities:

- (1) I WILL TELL YOU ABOUT THE WAY A CURVED LINE IS MADE. NOW, YOU MAKE IT ON YOUR PAPER.

Describe how a line segment is made. Use terms such as up, curved, and down to the line.

Task Analysis	
Process	Cognition

In: auditory verbal perceptual  
Out: motor nonverbal recall

- (2) LOOK AT THE LINE SHAPE ON THIS SIDE. WHO CAN MAKE THIS ONE LOOK JUST LIKE IT?

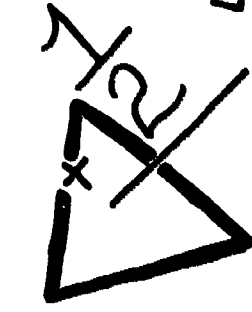
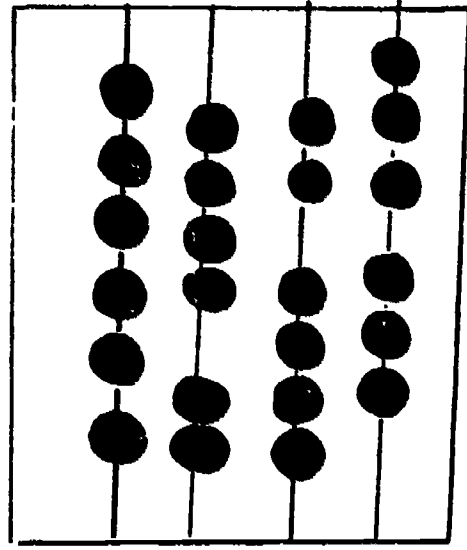
Show a curved line segment on the overhead projector. Next to it have the same line segment with a small piece missing from the bottom. Provide pre-cut pieces for the segment. Make a series of the same curved line segment for presentation, each one having more of the curved line segment missing. Use the line segments which are used in cursive writing.

Examples:



Note: In number two above the complete image or model was shown. The next presentation showed the model with a part missing. The next presentation showed the model with still more of it missing. The next presentation with more missing, and so on until only enough of the model remains to give the barest clue. This full model to minimal clue with a puzzle-completion format can be used with a variety of media such as clay, felt, sand, chalk, crayon, and pencil.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p11; 2b-f	p37; 2,3

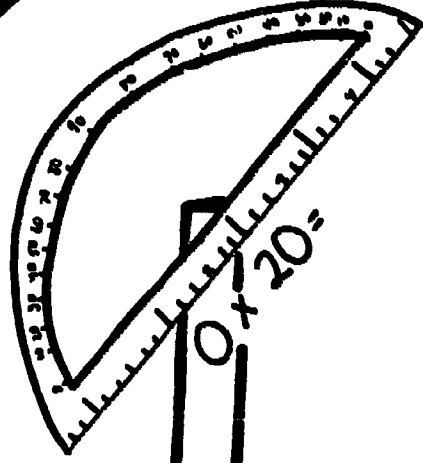


$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

$$60 \div 6 =$$

$$\begin{array}{r} 4 \\ - 2 \\ \hline \end{array}$$

$$6 \div 3 =$$



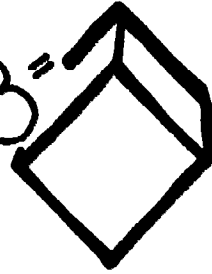
$$0 \times 20 =$$

$$10 \cdot 10 =$$

$$\begin{array}{r} 7 \\ + 3 \\ \hline \end{array}$$

$$5 \cdot 6 =$$

$$8 \div 3 =$$



PART II

# Mathematics

## INTRODUCTION

The mathematics section presents a range of mathematics abilities beginning with comparative words and culminating with budgeting skills. Within this range the traditional abilities of addition, subtraction, multiplication, and division are defined. The basic abilities needed to solve measurement and time problems are also identified. The abilities are listed in a developmental sequence within each subsection. For example, under Whole Number System--Grouping, the first ability is To group objects; the last ability is To associate the numerals 1,000-10,000 with their names.

Each ability statement is accompanied by an assessment activity. The assessment activity is intended to offer a way for the teacher to determine if the child has the associated ability. The authors of the Guide do not suggest that the assessment activity presented is the only valid way to determine if the child has the ability. Rather, it represents an example or model of an assessment activity that is relevant to the ability. For example, the assessment of the ability To construct a set using objects specifies chairs, crayons, and blocks as the objects. It is not essential to the ability that these specific objects be used. What is essential is that the objects selected for use must lend themselves to being organized into a set.

When the teacher decides to make an assessment, he should be sure that the assessment activity meets the following criteria: Does it relate to the ability? Is it appropriate for the student's interest level? For example, don't use primary blocks to illustrate size differences for a secondary student whose interest might better be captured by using model cars or shop tools. Appropriate language is important as well; for example, if the ability is To say words that start with the sound of the letter "b," be sure to use words that are within the student's speaking vocabulary.

The teacher is urged to examine each ability statement and ask this question: What would a child be doing to show that he has this ability? The presented assessment activities offer one answer to that question. It is not the only answer. The authors of the Guide assume that the teacher will find other answers which may be more relevant to his children.

Suggested teaching activities are included. These are offered as examples of ways to teach the associated ability. Each suggested teaching activity consists of a restatement of both the ability and the assessment activity, content-development activities, and reinforcement activities. Some of the suggested teaching activities also include the task analysis of some content-development activities. The teacher will find a thorough discussion of task analysis and content-development in the Introduction to the Guide. In that discussion the importance of parsimony and clarity when giving directions is emphasized. This focus on teacher behavior is vital because

teacher behavior will have a critical effect upon the child's performance of a task. In order for the teacher to obtain a clear look at the child's performance, she must be aware of her own behavior, especially when giving directions. The teacher should set standards for her oral or written directions. These directions should be clear, stressing both the problem and what the child is to do. They should not include vocabulary that is beyond the child's comprehension. Directions should not be couched in a complicated language pattern. Simple syntax is usually the easiest to follow, and oral directions should not be overly long or make extraordinary demands upon the pupils' attention span.

References to teaching resources and teaching strategies are made in the columns on the right side of the page. The resources include references to additional math exercises and lessons in other sections of the Guide as well as to additional materials. The teaching strategies refer to techniques that may be utilized to assist the teacher in math instruction.

The mathematics section has presented a list of abilities in mathematics that each child should master. These abilities are sequential within each section and subsection. Assessment activities accompany each ability statement. These are only examples of a specific type of behavior that the student will perform to demonstrate possession of the accompanying ability.

Suggested teaching activities are developed as instructional guides only. These suggestions include sample activities for development of the ability; activities to reinforce the ability; and references to supplementary and complementary lessons, materials, and teaching techniques.

We suggest that the teacher use the ability statements and the associated assessment activities (where appropriate) to determine the baseline of mathematics mastery for each student. From that baseline, content-development and reinforcement activities may be developed following the suggested activities format. Please note that the abilities that are developed in these teaching activities should not be regarded as the sum of the abilities that are to be taught in any math program. The suggested teaching activities show a method of teaching any ability in the section. The abilities to be taught will be selected on the basis of the child's needs in mathematics.



## ABILITIES AND ASSESSMENTS

COMPARATIVE WORDS EXPRESSING QUANTITY

Note: Develop all comparative and superlative words relevant to mathematics.

1. To identify objects as big or little (or, as large or small: vocabulary for older children).

Place before the student a set of five or six objects, some of which are comparatively "big." For example, the set could consist of a desk, a chair, a wastebasket, a book, and a pencil.

WE HAVE SOME BIG THINGS (OBJECTS) AND LITTLE THINGS (OBJECTS). (Point to one object at a time.) IS THIS BIG OR LITTLE?

2. To tell if an object is shorter or longer than another object.

Give the student two similar long thin objects of obviously differing lengths. For example, use two sticks, or two pencils.

HERE ARE TWO STICKS (PENCILS, etc.). WHICH STICK IS LONGER? WHICH STICK IS SHORTER?

3. To identify the biggest or littlest object (largest or smallest for older children).

Provide a set of three similar objects which differ noticeably in size. For example, use three blocks of different sizes.

ONE OF THESE BLOCKS IS BIGGEST (LARGEST) AND ONE IS LITTLEST (SMALLEST). WHICH BLOCK IS THIS? WHICH BLOCK IS THIS?

4. To apply concepts of all, some, and none to a given situation.

Place before the student several like objects. For example, use eight crayons.

LOOK AT THE CRAYONS. SHOW ME (POINT TO, etc.) SOME OF THE CRAYONS. SHOW ME ALL OF THE CRAYONS. SHOW ME NONE OF THE CRAYONS. (Pick up some of the crayons.) DO I HAVE SOME OF THE CRAYONS? PICK UP ALL OF THE CRAYONS. PUT ALL OF THE CRAYONS AWAY. HOW MANY CRAYONS ARE LEFT?

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
M 57	p14; 11	p69; 5	
M 59	p14; 12 p13; 10d	p69; 5	
		p69; 5	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>5. To apply the concepts of many and few (<u>fewer, fewest</u>).</p> <p>Place before the student four piles of small like objects. For example, use piles of 5 nails, 20 nails, 50 nails, and 100 nails.</p> <p>LOOK AT THE NAILS. SHOW ME (POINT TO, etc.) A PILE THAT HAS MANY NAILS. SHOW ME A PILE THAT HAS FEWER NAILS. SHOW ME THE PILE THAT HAS THE FEWEST NAILS.</p> <p>Provide a set of up to 100 small like objects. For example, use paper clips.</p> <p>HERE ARE SOME PAPER CLIPS. PICK UP A FEW PAPER CLIPS. PUT THEM IN A PILE HERE. PICK UP MANY PAPER CLIPS. PUT THEM IN A PILE HERE. IN THE PILE THAT IS LEFT DO YOU HAVE MANY OR FEW CLIPS?</p> <p>Indicate a pile with many clips.</p> <p>PICK UP FEWER CLIPS THAN THIS PILE HAS. PICK UP THE PILE WITH THE FEWEST CLIPS. PUT ALL THE CLIPS INTO ONE PILE. DO YOU HAVE MANY CLIPS OR FEW CLIPS?</p> <p>6. To tell if a given quantity is much or little.</p> <p>Provide two identical glasses or saucers. One is nearly full of water and one contains about a spoonful of water.</p> <p>HERE ARE TWO GLASSES (SAUCERS, etc.). ONE HAS MUCH WATER IN IT AND ONE HAS LITTLE WATER IN IT. SHOW ME (POINT TO, etc.) THE ONE THAT HAS MUCH WATER IN IT. SHOW ME THE ONE THAT HAS LITTLE WATER IN IT.</p> <p>Provide a pile of sand (about a quart).</p> <p>HERE IS A PILE OF SAND. TAKE A LITTLE SAND AND PUT IT HERE. TAKE MUCH SAND FROM THE PILE AND PUT IT HERE. DO YOU HAVE MUCH SAND OR LITTLE SAND LEFT IN THE PILE YOU STARTED WITH?</p> <p>7. To apply the concepts of cupful and handful.</p> <p>Provide a pile of sand (about a quart) and a cup (paper cup, teacup, etc., but not a measuring cup).</p> <p>HERE IS A PILE OF SAND. TAKE OUT A HANDFUL OF SAND. PUT IT HERE. TAKE OUT A CUPFUL OF SAND. PUT IT HERE.</p>	<p>p13; 10d p14; 13 p16; 37</p> <p>p13; 10d p16; 37</p>	<p>p69; 5</p>

## (Abilities and assessments)

BASIC SET CONCEPTS1. To identify observable sets of things.

Place several sets (of fewer than 10 members each) of common classroom items within easy view, but not necessarily directly in front of the student. For example, place four chalkboard erasers on the chalkboard edge, six balls on a table, three chairs grouped together.

THERE ARE SOME SETS OF THINGS IN THE ROOM. FIND A SET OF CHAIRS (ERASERS, BALLS, etc.).

2. To construct a set, using objects.

MAKE A SET OF CHAIRS. MAKE A SET OF CRAYONS. PICK UP A SET OF BLOCKS. HOLD A SET OF CLOTHESPINS IN YOUR HAND.

3. To label a collection placed before him "a set."

Have available several sets, each set consisting of from two to nine like objects. For example, have seven pencils, three blocks, two chairs, eight books. Point to one set at a time.

WHAT CAN WE CALL THIS GROUP (BUNCH, PILE, etc.) OF PENCILS (BLOCKS, etc.)?

4. To use "member" or "members" to refer to the individual elements of a set.

HERE IS A SET OF BALLOONS (PENNIES, BOOKS, etc.). WHAT IS ONE BALLOON (PENNY, BOOK, etc.) CALLED?

5. To construct a set equivalent to a model set.

Place before the student 10 to 15 identical objects. For example, use blocks of the same size and color. Place an identical pool of objects before yourself. Remove a set (of fewer than 10 members) from your pool. Place it a short distance from the pool.

NOW YOU MAKE THE SAME SET FROM YOUR BLOCKS.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 61	p13; 10d p15; 30a	
	p13; 10a, b, 10d p15; 30a	
M 63	p13; 10a	
	p13; 10b	
	p13; 10d p14; 13 p15; 30a	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>6. <u>To construct a set equivalent to a pictured set.</u></p> <p>Use sets of 10 to 12 identical objects and pictures of sets of the same object. No picture is to have more than nine members.</p> <p>HERE IS A PICTURE OF A SET OF PENCIL (PENNIES, etc.). MAKE A SET LIKE THE ONE IN THE PICTURE.</p> <p>7. <u>To select a pictured set equivalent to a model set.</u></p> <p>Place a set (of fewer than 10 members) of objects before the student. For example, use buttons or plastic spoons. Give him three pictures showing sets of the same object.</p> <p>LOOK AT THIS SET OF BUTTONS (SPOONS, etc.). NOW LOOK AT THESE PICTURES OF SETS OF BUTTONS (SPOONS, etc.). SHOW ME (POINT TO, etc.) WHICH PICTURE IS THE SAME AS THIS SET OF BUTTONS (SPOONS, etc.).</p> <p>8. <u>To match pictures of equivalent sets.</u></p> <p>Place before the student several pictures, each showing a set of one to nine objects. For example, use pictures of sets of boys, cars, bikes. Show him a picture of a set (not greater than nine) of the same object.</p> <p>LOOK AT THE PICTURES YOU HAVE. FIND THE PICTURE THAT SHOWS THE SAME SET AS THIS PICTURE OF BOYS (CARS, etc.).</p> <p>CARDINAL PROPERTIES OF SETS</p> <p>1. <u>To count to nine orally.</u></p> <p>COUNT TO NINE.</p> <p>2. <u>To identify the cardinal property of each of the presented sets (1-9).</u></p> <p>Use a pool of 10 objects. Remove a set and place it before the student.</p> <p>HOW MANY?</p>	<p>p13; 10d p15; 30a</p> <p>p13; 10d p15; 30a</p> <p>p13; 10d p15; 30a</p> <p>p13; 6,7, 9,10d p15; 30a</p> <p>p13; 10d p15; 30a</p>	<p>p50</p>

(Abilities and assessments)

3. To recognize sets having specified cardinal properties (1-9).  
Use sets of one to nine identical objects or pictures of sets.  
POINT TO THE SET OF TWO (THREE, etc.) CARS (DOGS, etc.).
4. To construct a set when given the cardinal property (1-9).  
Place a group of at least 10 identical objects before the student.  
MAKE A SET OF ONE (TWO, THREE, etc.) BALLS (PENNIES, CLOTHESPINS, etc.).
5. To copy numerals 1-9.  
Write the numerals 1-9 on a paper or provide a dittoed page showing the numerals.  
WRITE THE NUMERALS. WRITE THEM HERE.
6. To write numerals 1-9 from dictation.  
I AM GOING TO READ THE NUMERALS TO YOU. WRITE EACH NUMERAL AS I READ IT.  
Read the numerals in normal sequence. Repeat, reading the numerals in random sequence.
7. To apply the numberline to the concepts of one through nine.  
HERE IS OUR NUMBERLINE. WRITE THE NUMERALS ONE THROUGH NINE ABOVE THE LINE. WRITE EACH NUMERAL IN THE PLACE WHERE IT BELONGS.

ADDITION CONCEPTS

Note: Use money as motivating material in teaching addition.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 64	p13; 10d p15; 30a-c p13; 10d p15; 30a-c  p14; 18 p15; 30a,t   p13; 6,7	

## (Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>1. <u>To join sets between one and nine using concrete objects (sum less than ten).</u></p> <p>Use 20 identical objects. For example, use blocks, cut-out circles, etc. In a linear arrangement present two disjoint sets to the student such that their sum is less than ten.</p> <p>MAKE A SET THAT SHOWS HOW MANY BLOCKS (CIRCLES, etc.) THERE ARE WHEN YOU PUT THESE SETS TOGETHER. PUT YOUR SET HERE. (Indicate a line which continues your linear arrangement:)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> </div> <p style="margin-left: 100px;">Presented sets</p> <p style="margin-left: 250px;">Student's set</p>	<p>p13; 9</p> <p>p14; 15,19, 20</p> <p>p15; 30a-c</p>	<p>p67; 1</p> <p>p68; 2,3</p> <p>p69; 4</p>
<p>2. <u>To associate the spoken words "add" or "plus" or "join" with the addition operation.</u></p> <p>HERE IS A SET OF THREE STICKS. HERE IS A SET OF TWO STICKS. I WILL NOW ADD (JOIN) THE TWO STICKS TO THE THREE STICKS. WHAT WORD TELLS THAT I ADD (JOIN) THE SETS? (response: join, add)</p> <p>WATCH AND LISTEN WHILE I JOIN (OR ADD) THESE SETS. THREE "BEEP" TWO. WHAT WORD GOES WHERE I SAID "BEEP"? (response: plus)</p>	M 66	
<p>3. <u>To associate the spoken word "equal(s)" with the condition of equal sets.</u></p> <p>HERE ARE SOME BLOCKS (BALLS, SQUARES, etc.). MOVE THE BLOCKS TO SHOW THIS ADDING STORY: FOUR PLUS ONE EQUALS FIVE.</p> <p>WATCH THE BLOCKS (BALLS, SQUARES, etc.) AS I MOVE THEM. LISTEN TO THE ADDING STORY: TWO PLUS THREE "BEEP" FIVE. WHAT WORD BELONGS WHERE I SAID "BEEP"?</p>		
<p>4. <u>To add sets of one through nine orally (sum less than ten).</u></p> <p>Present disjoint sets of objects such that their sum is less than ten.</p> <p>TELL THE STORY ABOUT PUTTING THE SETS TOGETHER. (Elicit, for example, "one plus three equals four.")</p>	<p>p15; 30a-c 34a</p>	<p>p67; 1</p> <p>p68; 3</p> <p>p69; 4</p>

(Abilities and Assessments)

5. To recognize the symbols + and = .  
Write the symbols + and = , or use plastic models. Indicate one at a time.  
WHAT DO WE CALL THIS?
6. To write the symbols + and = .
- I AM GOING TO TELL YOU WHAT TO WRITE ON YOUR PAPER. WRITE THE SIGN WHICH SAYS "PLUS." WRITE THE SIGN WHICH SAYS "EQUALS."
7. To add sets one through nine in written form (sum less than ten).  
HERE ARE SOME ADDITION PROBLEMS. WRITE THE CORRECT ANSWERS.  
$$\begin{array}{r} 2 + 3 = \quad\quad\quad 7 + 2 = \\ \underline{\phantom{0}} \qquad\quad\quad \underline{\phantom{0}} \end{array}$$
8. To write a correct equation from a verbal story problem.  
I AM GOING TO TELL AN ADDITION STORY. WRITE THE ADDITION STORY ON YOUR PAPER. BOB AND JOE WENT TO THE COTTAGESSARY. BOB BOUGHT FOUR APPLES. JOE BOUGHT THREE APPLES. WRITE THE ADDITION STORY THAT TELLS HOW MANY APPLES THEY BOUGHT. (written response:  $4 + 3 = 7$ )
9. To write the correct answer to simple addition story problems which are given orally.  
I AM GOING TO TELL AN ADDITION STORY. WRITE THE ANSWER ON YOUR PAPER. THERE ARE TWO DOGS IN A ROOM. ONE MORE DOG COMES IN. HOW MANY DOGS ARE THERE NOW? (written response: 5)
10. To write the correct answer to printed simple addition problems.

**WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:**

2	6	7	4	5	8	4	2
2	1	2	4	3	1	5	4
							=

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p14; 13 p15; 30a-c	p68; 2
M 68	p14; 13 p15; 30a-c	p68; 2

(Abilities and assessments)

11. To add sets one through nine with three addends, the sum of which does not exceed nine:

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

2	6	5	3	1 + 2 + 3 =	4 + 2 + 1 =	3 + 4 + 2 =
3	1	2	2			
1	2	2	4			

SUBTRACTION CONCEPTS

Write: Use money as motivating material in teaching subtraction.

To separate sets nine through one (remainder greater than zero).

Give the student seven similar objects (e.g., pencils, blocks, marbles, hats).

SEPARATE A SET OF TWO PENCILS (BLOCKS, etc.) FROM THIS SET OF SEVEN PENCILS (BLOCKS, etc.). HOW MANY PENCILS (BLOCKS, etc.) ARE IN THE NEW SET?

2. To associate the spoken words "subtract" and "minus" with the subtraction operation.

WHAT DO WE DO WHEN WE SUBTRACT? (Accept any logical response--for example, "separate," or "take away"--as a description of the process.)

Place eight pennies before the student. Separate five while saying:

WATCH AND LISTEN. EIGHT "BEEP" FIVE EQUALS THREE. WHAT WORD SHOULD I USE IN PLACE OF THE "BEEP"?

3. To subtract sets nine through one orally (remainder greater than zero).

Provide a set of 20 like objects. For example, use marbles, hand puppets, etc.

HERE ARE SOME MARBLES (PUPPETS, etc.). MAKE A SET OF NINE MARBLES (PUPPETS, etc.). TAKE AWAY ONE MARBLE. TELL THE SUBTRACTION STORY.

Repeat, using other subtraction combinations nine through one.

M 10

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
M 70	p14; 13 p15; 30a-c	p62; 5	
M 72	p14; 13 p15; 30a-c	p67; 1 p68; 3 p69; 4	
	p14; 13 p15; 30a-c	p62; 5 p67; 1 p68; 3	



(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>4. To recognize the symbol - (minus sign). Write the minus sign on the chalkboard. WHAT DO WE CALL THIS SIGN?</p> <p>5. To write the symbol - (minus sign). WRITE THE SIGN WHICH SAYS "MINUS."</p> <p>6. To subtract sets nine through one in written form (remainder greater than zero). HERE IS A SET OF FIVE BALLS. I AM SUBTRACTING ONE FROM THE SET. HOW MANY ARE LEFT? WRITE THE SUBTRACTION STORY ON THE PAPER. (written response: <math>5 - 1 = 4</math>)</p> <p>7. To write the correct answer to simple subtraction story problems given orally (remainder greater than zero). I AM GOING TO TELL A SUBTRACTION STORY. WRITE THE ANSWER TO THE STORY ON YOUR PAPER. JIMMY HAD FIVE CANDLES ON HIS BIRTHDAY CAKE. HE BLEW OUT EIGHT CANDLES THE FIRST TRY. HOW MANY CANDLES WERE STILL BURNING? (written response: ?)</p> <p>8. To write the correct answer to printed simple subtraction problems. WRITE THE ANSWERS TO THESE PROBLEMS:</p> $\begin{array}{r} 6 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ 5 - 1 = \\ -7 \end{array} \quad \begin{array}{r} 9 - 3 = \end{array}$ <p><u>ORDINAL NUMBER CONCEPTS</u></p> <p>1. To identify the ordinal property of an object. Place nine chairs in a line, one behind another. Indicate the first chair. THIS IS THE FIRST CHAIR IN THE ROW. (Indicate another.) WHICH CHAIR IS THIS ONE?</p>	<p>p14; 13 p15; 30a-c 34b</p> <p>M 73</p> <p>p13; 10c,d p14; 13 p15; 33</p> <p>M 76</p>	<p>p62; 5 p69; 4</p> <p>p67; 1 p68; 3 p69; 4</p>

(Abilities and assessments)

- Continue to indicate other chairs, in random sequence, asking the same question.
- Place nine books on a shelf, one beside another. (If more than one student is involved, be sure they all have the same left to right orientation.)
- THIS IS THE THIRD BOOK ON THE SHELF. (Indicate another.) WHICH BOOK IS THIS ONE?
- Continue to indicate other books, in random sequence, asking the same question.
2. To identify an object of specified ordinal property.
- Place nine toy cars in a line, one behind another, so that the student looks down on them.
- SHOW ME (POINT TO, etc.) THE FIRST CAR. SHOW ME THE SECOND CAR.
- Hang nine socks on a clothesline. If more than one student is involved, be sure they all have the same left to right orientation.
- SHOW ME (POINT TO, etc.) THE FIRST SOCK. SHOW ME THE FOURTH SOCK, etc.

THE CONCEPT OF ZERO

1. To recognize the empty set as the one which contains no members.
- HOW MANY REAL DOGS ARE IN OUR CLASSROOM? WHAT DO WE CALL THE SET OF DOGS IN THE CLASSROOM? HOW MANY MEMBERS ARE IN THE EMPTY SET OF DOGS?
2. To associate the word "zero" with an empty set.
- Hold out your empty hand.
- WHAT IS THE NUMBER OF MEMBERS IN THE SET OF GUMDROPS IN MY HAND? WHAT DO WE CALL THE SET OF GUMDROPS IN MY HAND? HOW MANY GUMDROPS ARE IN THE EMPTY SET?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 78	p13; 10c,d p14; 13 p15; 33	
	p13; 10b	
	p13; 10b	

## (Abilities and assessments)

3. To locate zero on a numberline.  
HERE IS A NUMBERLINE. FIND THE PLACE FOR ZERO.
4. To recognize that when adding zero to numerals, the zero addend does not affect the sum.  
IF I GAVE YOU TWO PENCILS AND THEN I GAVE YOU ZERO PENCILS, HOW MANY PENCILS WOULD YOU HAVE ALL TOGETHER?  
WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:  

$$\begin{array}{r} 5 \\ 0 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 6 + 0 = \\ 0 + 3 = \end{array}$$

HOW ARE ALL OF THESE ANSWERS ALIKE?
5. To recognize that when subtracting zero from numerals, the remainder is the same as the subtrahend.  
WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:  

$$\begin{array}{r} 3 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ 8 - 0 = \\ -2 \end{array} \quad \begin{array}{r} 4 - 0 = \end{array}$$

HOW ARE ALL OF THESE ANSWERS ALIKE?

FOUR NUMBER SYSTEM--GROUPING

- i. To group objects (to construct subsets).  
Provide a set of twelve like objects. For example, use balloons, dolls, sticks. (Do not use the word "twelve.")  
HERE IS A SET OF BALLOONS. MAKE GROUPS SO THAT THERE ARE TWO BALLOONS IN EACH GROUP. MAKE GROUPS SO THAT THERE ARE THREE BALLOONS IN EACH GROUP. SHOW ME OTHER WAYS THAT YOU CAN GROUP THE BALLOONS.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 79	p13; 6,7	
M 81	p13; 10a,d p15; 30a,b	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>2. To <u>group objects by tens</u>. Provide a set of like objects, the total of which is a multiple of ten. For example, use 80 pennies, 60 paper clips, 50 buttons. MAKE GROUPS OF THESE PENNIES (PAPER CLIPS, etc.). PUT TEN PENNIES (PAPER CLIPS, etc.) IN A GROUP.</p> <p>3. To <u>group objects by tens and ones</u>. Provide a set of like objects, the total of which is not a multiple of ten. For example, use 23 clothespins, 37 blocks, 48 crayons. MAKE GROUPS OF THESE CLOTHESPINS (BLOCKS, etc.). PUT TEN CLOTHESPINS (BLOCKS, etc.) INTO EACH GROUP. DO YOU HAVE ANY CLOTHESPINS (BLOCKS, etc.) LEFT OVER?</p> <p>4. To <u>group by tens and ones and state the outcomes</u>. Provide a set of like objects, the total of which is not a multiple of ten. For example, use 77 tongue depressors, 18 plastic spoons, 34 pennies. MAKE GROUPS OF THESE STICKS (SPOONS, etc.). PUT TEN STICKS (SPOONS, etc.) INTO AS MANY GROUPS AS YOU CAN. HOW MANY GROUPS OF TEN DO YOU HAVE? HOW MANY GROUPS OF ONE DO YOU HAVE?</p> <p>5. To <u>write numerals from grouping</u>. Provide like objects grouped in tens and ones. For example, use tongue depressors tied into bundles of ten and single depressors. LOOK AT THE STICKS. THEY ARE GROUPED IN TENS AND ONES. WRITE HOW MANY STICKS ARE HERE.</p> <p>6. To <u>discriminate how many tens and ones are in a specified numeral</u>. Write one- and two-digit numerals on the chalkboard. LOOK AT THIS NUMERAL. HOW MANY TENS ARE IN THIS NUMERAL? HOW MANY ONES?</p>	<p>p13; 9</p> <p>p13; 9</p>	<p>p71, 9</p> <p>p71; 7</p>

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
7. <u>To read the numerals 10 to 100 and associate these numerals with the corresponding number concepts.</u> Provide like objects grouped in tens and ones. Write a two-digit numeral on the chalkboard. WHAT IS THIS NUMERAL? SHOW ME HOW MANY STICKS (PENNIES, etc.) MAKE A(N) ____ (the numeral used).	M 83		p71; 7
8. <u>To count to one hundred by ones.</u> COUNT TO ONE HUNDRED.			
9. <u>To group to one hundred by tens.</u> Provide a set of one hundred like objects. For example, use squares, sticks, pennies. HERE ARE ONE HUNDRED SQUARES (STICKS, etc.). GROUP THEM BY TENS.			p71; 9
10. <u>To group ten tens into one set of one hundred.</u> Provide ten sets of like objects grouped by tens. For example, use piles of buttons, paper clips. HERE ARE SETS OF BUTTONS (PAPER CLIPS, etc.). EACH SET IS ONE TEN. PUT ALL OF THE SETS TOGETHER INTO ONE SET. HOW MANY BUTTONS (PAPER CLIPS, etc.) DO WE HAVE NOW?			p71; 9
11. <u>To count to one hundred by tens.</u> COUNT TO ONE HUNDRED BY TENS.			
12. <u>To count to one hundred by fives.</u> COUNT TO ONE HUNDRED BY FIVES.			
13. <u>To count to one hundred by twos.</u> COUNT TO ONE HUNDRED BY TWOS.			

## (Abilities and assessments.)

14. To group sets by hundreds, tens, and ones.  
Provide a set of more than 100 like objects. For example, use 134 pennies, 171 paper clips. HERE ARE 134 (171, etc.) PENNIES (PAPER CLIPS, etc.). GROUP THE PENNIES (PAPER CLIPS, etc.) BY HUNDREDS, TENS, AND ONES.
15. To write numerals in the hundreds by grouping objects.  
Provide sets of more than 100 like objects. For example, use 154 paper circles, 225 nails, 115 clothespins.  
LOOK AT THE CIRCLES (NAILS, etc.). GROUP THEM BY HUNDREDS, TENS, AND ONES. HOW MANY DO YOU HAVE ALL TOGETHER? WRITE THE NUMERAL WHICH TELLS HOW MANY CIRCLES (NAILS, etc.) YOU HAVE.
16. To write numerals in the hundreds, using a place-value chart.  
Provide the students place-value charts. Dictate three-digit numerals.  
HERE IS A PLACE-VALUE CHART. WRITE THESE NUMERALS ON THE CHART: 153, 248, 335, etc.
17. To recognize the place-holder value of zero.  
Write two- and three-digit numerals on the chalkboard, each numeral having a zero. For example, write 20, 130, 250, 104, 300, etc. Point to the zero in a numeral.  
WHAT DOES THIS ZERO MEAN IN THIS NUMERAL?
18. To write numerals in the hundreds.  
Write three-digit numerals on the chalkboard or on a paper, or provide dittoed sheets containing three-digit numerals.  
COPY THESE NUMERALS ON YOUR PAPER.  
Dictate three-digit numerals.  
I AM GOING TO READ SOME NUMERALS. WRITE EACH NUMERAL ON YOUR PAPER.

M 85

## TEACHER TIPS

Suggested  
ActivitiesTeaching  
ResourcesTeaching  
Strategies

p71; 7

p71; 7

## (Abilities and assessments)

	TEACHER TIPS																							
	Suggested Activities	Teaching Resources	Teaching Strategies																					
19. <u>To count to one thousand by hundreds.</u> COUNT TO ONE THOUSAND BY HUNDREDS.																								
20. <u>To associate the numerals 100 to 1000 with their names.</u>  Write three-digit numerals on the chalkboard.  TELL ME THE NAME OF THIS NUMERAL.  Provide dittoed sheets showing sets of two and three numerals (100-1000), including some sets where discrimination may be difficult. For example, use these sets:  <table><tr><td>175</td><td>482</td><td>176</td><td>487</td><td>345</td><td>523</td><td>365</td></tr><tr><td>826</td><td>382</td><td>423</td><td>426</td><td>346</td><td>533</td><td>265</td></tr><tr><td></td><td></td><td>871</td><td>415</td><td>347</td><td>543</td><td>165</td></tr></table>  I AM GOING TO READ A NUMERAL FROM THIS SET OF NUMERALS. DRAW A CIRCLE AROUND THE ONE I READ.	175	482	176	487	345	523	365	826	382	423	426	346	533	265			871	415	347	543	165			
175	482	176	487	345	523	365																		
826	382	423	426	346	533	265																		
		871	415	347	543	165																		
21. <u>To write numerals in the thousands, using a place-value chart.</u>  Provide the student a place-value chart. Dictate four-digit numerals.  HERE IS A PLACE-VALUE CHART. WRITE THESE NUMERALS ON THE CHART: 4251, 1368, etc.																								
22. <u>To write numerals in the thousands.</u>  Write four-digit numerals on the chalkboard or on a paper, or provide dittced sheets containing four-digit numerals.  WRITE THESE NUMERALS ON YOUR PAPER.  Dictate four-digit numerals.  I AM GOING TO READ SOME NUMERALS. WRITE EACH NUMERAL ON YOUR PAPER.			p71; 7																					

(Abilities and assessments)

23. To associate the numerals 1000 to 10,000 with their names.

Write numerals (1000-10,000) on the chalkboard.

WHAT IS THE NAME OF THIS NUMERAL?

Provide dittoed sheets showing sets of two and three numerals (1000-10,000), including some sets where discrimination may be difficult. For example, use these sets:

2468	5826	3676	8785	3678	6842	7251
1357	3487	3582	7858	5421	6843	7261
				2918	6844	7271

I AM GOING TO READ A NUMERAL FROM THIS SET OF NUMERALS. DRAW A CIRCLE AROUND THE ONE I READ.

WHOLE NUMBER SYSTEM--MULTIPLICATION AND DIVISION--BASIC FACTS

1. To join two equivalent sets.

Provide sets of two equivalent groups of like objects. For example, use two sets of blocks, each set having three members.

HERE ARE THREE (FOUR, etc.) BLOCKS AND HERE ARE THREE BLOCKS. JOIN THE SETS. HOW MANY BLOCKS DO YOU HAVE NOW?

2. To recognize multiplication as a faster way of adding equivalent groups.

Write several equivalent sets on the chalkboard. For example, write in addition format 4, 4, 4; 8, 8, 8, 8; 7, 7, 7. Indicate one set at a time.

ADD THIS SET OF 4, 4, 4 (8, 8, 8, etc.). WHAT IS A FASTER WAY OF ADDING SETS LIKE THESE?

3. To multiply orally two equivalent sets with a multiplicand not exceeding ten.

Provide several pairs of sets of like objects, each set having 1-10 members. For example, use two sets of 5 pennies each, two sets of 4 balls each, two sets of 7 pencils. Present a pair of sets to the student.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p14; 15, 17, 19 p15; 30a-c	
	p15; 30a-c	
M 87	p15; 30a-c 34c	p62; 5 p68; 3 p69; 4



(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
HERE ARE TWO SETS OF PENNIES (BALLS, etc.). USE THESE SETS AND TELL A MULTIPLICATION STORY. (Expected response: three times two equals six.)		
4. To write the answers to simple multiplication problems when given in horizontal written form.		
WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:  $3 \times 2 =$ $4 \times 3 =$ $6 \times 4 =$ $2 \times 5 =$ $6 \times 6 =$ $1 \times 7 =$ $5 \times 8 =$ $2 \times 9 =$		
5. To write the answers to simple multiplication problems when given in vertical written form.		
WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:  $\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$ $\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$ $\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$ $\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$ $\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$ $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$ $\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$	p15; 30a-c	
6. To recognize the separation of a set into equivalent subsets as division.		
HERE IS A SET OF 12 BLOCKS. SEPARATE THE SET INTO THREE SUBSETS. ARE THE SUBSETS ALIKE? NOW SEPARATE THE SET (OF 12 BLOCKS) INTO FOUR SUBSETS. ARE THE SUBSETS ALIKE? WHAT DO WE CALL IT WHEN WE SEPARATE A SET INTO SUBSETS THAT ARE ALIKE?	p14; 15,17, 19	
7. To recognize the symbols ÷ and ) .  WHAT DO WE CALL THIS SIGN: ÷ (or ) ?  WHAT DO WE DO WHEN WE SEE THIS SIGN: ÷ (or ) ?  READ THESE PROBLEMS OUT LOUD:  $6 \div 3 = 2$ $8 \div 2 = 4$ $2 \overline{)10}$ $3 \overline{)9}$		
8. To divide a set into two equivalent subsets when the dividend does not exceed ten.  Provide 2, 4, 6, 8, or 10 like objects.	M 89	p15; 30a-c

(Abilities and assessments)

- HERE IS A SET OF TWO (FOUR, etc.) BALLS (PENCILS, etc.). DIVIDE THE SET INTO TWO SUBSETS THAT ARE ALIKE.
9. To write the problem and the answer to basic division facts using either division symbol.
- I AM GOING TO TELL YOU SOME DIVISION PROBLEMS. WRITE THE PROBLEMS ON THE PAPER. USE THIS SIGN:  $\div$  (write sign on chalkboard or on student's paper). THEN WRITE THE ANSWERS.
- Repeat, asking the student to use  $\overline{)}$ .
- I AM GOING TO TELL YOU SOME DIVISION PROBLEMS. WRITE THE PROBLEMS ON THE PAPER. WRITE THE ANSWERS.
- As a response, accept either division symbol.

WHOLE NUMBER SYSTEM--ADDITION AND SUBTRACTION WITHOUT AND WITH REGROUPING

1. To add a 2-digit numeral and a 1-digit numeral requiring no regrouping (carrying).

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 10 \\ 1 \\ \hline 56 \\ 3 \\ \hline 92 \\ 7 \\ \hline 33 \\ 2 \\ \hline 41 \\ 6 \end{array}$$

2. To add a 2-digit numeral and a 1-digit numeral when regrouping is required.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 35 \\ 6 \\ \hline 24 \\ 8 \\ \hline 86 \\ 9 \\ \hline 67 \\ 5 \\ \hline 73 \\ 7 \end{array}$$

3. To add two 2-digit numerals when regrouping is not required.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 23 \\ 15 \\ \hline 16 \\ 32 \\ \hline 48 \\ 21 \\ \hline 52 \\ 25 \\ \hline 67 \\ 22 \end{array}$$

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 91	p13; 9 p15; 30a-c  p13; 9 p15; 30a-c  p13; 9 15; 30a-c	p68; 2     p68; 2

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p15; 30a-c 34a	
	p15; 30b,c	
	p15; 30b,c	
	p15; 30b,c	
	p15; 30a-c	

4. To add two 2-digit numerals when regrouping is required.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 64 \\ 28 \\ \hline \end{array} \quad \begin{array}{r} 27 \\ 45 \\ \hline \end{array} \quad \begin{array}{r} 78 \\ 19 \\ \hline \end{array} \quad \begin{array}{r} 86 \\ 48 \\ \hline \end{array} \quad \begin{array}{r} 37 \\ 57 \\ \hline \end{array}$$

5. To add a 3-digit numeral and a 1-digit numeral.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 352 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 721 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 516 \\ 8 \\ \hline \end{array} \quad \begin{array}{r} 927 \\ 4 \\ \hline \end{array} \quad \begin{array}{r} 193 \\ 9 \\ \hline \end{array}$$

6. To add a 3-digit numeral and a 2-digit numeral.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 214 \\ 21 \\ \hline \end{array} \quad \begin{array}{r} 349 \\ 37 \\ \hline \end{array} \quad \begin{array}{r} 567 \\ 42 \\ \hline \end{array} \quad \begin{array}{r} 798 \\ 26 \\ \hline \end{array} \quad \begin{array}{r} 183 \\ 17 \\ \hline \end{array}$$

7. To add two 3-digit numerals.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 324 \\ 465 \\ \hline \end{array} \quad \begin{array}{r} 519 \\ 423 \\ \hline \end{array} \quad \begin{array}{r} 768 \\ 143 \\ \hline \end{array} \quad \begin{array}{r} 275 \\ 584 \\ \hline \end{array} \quad \begin{array}{r} 265 \\ 335 \\ \hline \end{array}$$

8. To add three 1-digit numerals when the sum is greater than 10.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 3 + 4 + 6 = \\ 8 + 2 + 2 = \\ 9 + 7 + 6 = \end{array} \quad \begin{array}{r} 5 \\ 9 \\ 3 \end{array} \quad \begin{array}{r} 6 \\ 5 \\ 3 \end{array} \quad \begin{array}{r} 7 \\ 7 \\ 8 \end{array}$$

## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
9. <u>To add three 2-digit numerals.</u> WRITE THE ANSWERS TO THESE ADDITION PROBLEMS: $\begin{array}{r} 14 \\ 21 \\ 52 \\ \hline \end{array} \quad \begin{array}{r} 27 \\ 16 \\ 43 \\ \hline \end{array} \quad \begin{array}{r} 32 \\ 45 \\ 51 \\ \hline \end{array} \quad \begin{array}{r} 46 \\ 71 \\ 15 \\ \hline \end{array} \quad \begin{array}{r} 76 \\ 83 \\ 11 \\ \hline \end{array}$		p15; 30b,c	p68; 2
10. <u>To subtract a 1-digit numeral from a 2-digit numeral without regrouping.</u> WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS: $\begin{array}{r} 24 \\ -1 \\ \hline \end{array} \quad \begin{array}{r} 76 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 89 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} 38 \\ -4 \\ \hline \end{array} \quad \begin{array}{r} 55 \\ -5 \\ \hline \end{array}$		p15; 30a-c	p68; 3
11. <u>To subtract a 1-digit numeral from a 2-digit numeral when regrouping is required.</u> WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS: $\begin{array}{r} 34 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 72 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 41 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 85 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 63 \\ -6 \\ \hline \end{array}$		p15; 30b,c	
12. <u>To subtract a 2-digit numeral from a 2-digit numeral when regrouping is not required.</u> WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS: $\begin{array}{r} 35 \\ -13 \\ \hline \end{array} \quad \begin{array}{r} 76 \\ -46 \\ \hline \end{array} \quad \begin{array}{r} 86 \\ -71 \\ \hline \end{array} \quad \begin{array}{r} 48 \\ -24 \\ \hline \end{array} \quad \begin{array}{r} 69 \\ -36 \\ \hline \end{array}$		p15; 30b,c	
13. <u>To subtract a 2-digit numeral from a 2-digit numeral when regrouping is required.</u> WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS: $\begin{array}{r} 25 \\ -17 \\ \hline \end{array} \quad \begin{array}{r} 43 \\ -26 \\ \hline \end{array} \quad \begin{array}{r} 71 \\ -63 \\ \hline \end{array} \quad \begin{array}{r} 38 \\ -19 \\ \hline \end{array} \quad \begin{array}{r} 82 \\ -34 \\ \hline \end{array}$		p15; 30b,c	

## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
14. To subtract a 2-digit numeral from a 3-digit numeral. WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:	$\begin{array}{r} 529 \\ - 13 \\ \hline \end{array}$ $\begin{array}{r} 436 \\ - 19 \\ \hline \end{array}$ $\begin{array}{r} 573 \\ - 81 \\ \hline \end{array}$ $\begin{array}{r} 650 \\ - 78 \\ \hline \end{array}$ $\begin{array}{r} 127 \\ - 49 \\ \hline \end{array}$	p15; 30t,c	
15. To subtract 3-digit numerals from 3-digit numerals. WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:	$\begin{array}{r} 687 \\ - 245 \\ \hline \end{array}$ $\begin{array}{r} 540 \\ - 312 \\ \hline \end{array}$ $\begin{array}{r} 432 \\ - 126 \\ \hline \end{array}$ $\begin{array}{r} 763 \\ - 493 \\ \hline \end{array}$ $\begin{array}{r} 822 \\ - 345 \\ \hline \end{array}$	p15; 30t,c	
WHOLE NUMBER SYSTEM--MULTIPLICATION AND DIVISION OF TWO- AND THREE-DIGIT NUMBERS			
1. To multiply using one digit in the multiplier and two digits in the multiplicand. WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:	$\begin{array}{r} 12 \times 4 = \\ \hline \end{array}$ $\begin{array}{r} 63 \times 3 = \\ \hline \end{array}$ $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$ $\begin{array}{r} 35 \times 7 = \\ \hline \end{array}$ $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$ $\begin{array}{r} 12 \\ \times 8 \\ \hline \end{array}$ $\begin{array}{r} 46 \\ \times 5 \\ \hline \end{array}$	p14; 13 p15; 30t,c 34c	p62; 5
2. To multiply using one digit in the multiplier and three digits in the multiplicand. WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:	$\begin{array}{r} 232 \\ \times 3 \\ \hline \end{array}$ $\begin{array}{r} 413 \\ \times 2 \\ \hline \end{array}$ $\begin{array}{r} 126 \\ \times 6 \\ \hline \end{array}$ $\begin{array}{r} 574 \\ \times 7 \\ \hline \end{array}$ $\begin{array}{r} 354 \\ \times 8 \\ \hline \end{array}$	p15; 30t,c 34c	
3. To multiply using two digits in the multiplier and two digits in the multiplicand. WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:	$\begin{array}{r} 13 \\ \times 12 \\ \hline \end{array}$ $\begin{array}{r} 25 \\ \times 32 \\ \hline \end{array}$ $\begin{array}{r} 64 \\ \times 26 \\ \hline \end{array}$ $\begin{array}{r} 47 \\ \times 20 \\ \hline \end{array}$ $\begin{array}{r} 35 \\ \times 76 \\ \hline \end{array}$	p15; 30t,c 34c	

## (Abilities and assessments)

4. To multiply using two digits in the multilier and three digits in the multiplicand.

WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:

$$\begin{array}{r} 124 \\ \times 11 \\ \hline \end{array} \quad \begin{array}{r} 318 \\ \times 42 \\ \hline \end{array} \quad \begin{array}{r} 905 \\ \times 63 \\ \hline \end{array} \quad \begin{array}{r} 267 \\ \times 84 \\ \hline \end{array} \quad \begin{array}{r} 769 \\ \times 59 \\ \hline \end{array}$$

5. To divide with two digits in the dividend and one digit in the divisor.

WRITE THE ANSWERS TO THESE DIVISION PROBLEMS:

$$28 \div 2 = \quad 51 \div 3 = \quad 96 \div 8 = \quad 2 \overline{)66} \quad 6 \overline{)72} \quad 3 \overline{)84} \quad 7 \overline{)91}$$

6. To divide with three digits in the dividend and one digit in the divisor.

WRITE THE ANSWERS TO THESE DIVISION PROBLEMS:

$$2 \overline{)824} \quad 3 \overline{)129} \quad 5 \overline{)235} \quad 9 \overline{)738} \quad 7 \overline{)538}$$

### FRACTIONS

1. To recognize one whole.

Place before the student paper or cardboard cut-outs of: a circle (diameter at least six inches), 1/2 circle, 1/3 circle, and 1/4 circle. For example, use a paper plate and sections of a plate.

LOOK AT THESE PIECES. POINT TO (PICK UP, etc.) THE PIECE THAT IS ONE WHOLE CIRCLE.

2. To recognize one half.

Place before the student paper or cardboard cut-outs of a whole and a half shape. For example, use whole and half circles, whole and half squares. Alternatively, use objects which can be halved easily and obviously. For example, use apples, cookies.

LOOK AT THESE. PICK UP (SHOW ME, etc.) THE HALF CIRCLE (APPLE, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 95	p15; 30b,c 34c	
	p15; 30b,c 34d	p62; 5
	p15; 30b,c 34d	
M 97	p13; 8 p14; 13 p16; 35,37	
M 97	p13; 8 p14; 13 p16; 35,37	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>3. <u>To recognize one quarter, two quarters, three quarters, and four quarters.</u></p> <p>Place before the student a paper cut-out circle (diameter at least six inches), and 12 quarters of the circle, randomly displayed.</p> <p>HERE IS A CIRCLE. PICK UP ONE QUARTER CIRCLE. PUT IT HERE. PICK UP TWO QUARTERS OF THE CIRCLE. PUT THEM HERE. (Plan to arrange fractional circles in a line, smallest to largest.) PICK UP THREE QUARTERS OF THE CIRCLE. PUT THEM HERE. PICK UP FOUR QUARTERS OF THE CIRCLE. PUT THEM HERE. FIND ONE PIECE WHICH IS THE SAME SIZE AS FOUR QUARTERS. SHOW HOW THE FOUR QUARTERS ARE THE SAME SIZE AS ONE WHOLE. (Expected response: The student placed four quarters on top of the whole, or arranges the four quarters in a circle and indicates that it is the same size as the whole.)</p>	<p>p13; 8 p14; 13 p16; 35</p>	
<p>4. <u>To recognize one third, two thirds, and three thirds.</u></p> <p>Place before the student a paper cut-out circle (diameter at least six inches) and ten like thirds of the circle, randomly displayed. Or use other shapes or objects which can be conveniently and obviously cut into thirds.</p> <p>HERE IS A CIRCLE. PICK UP ONE THIRD OF THE CIRCLE. PUT IT HERE. PICK UP TWO THIRDS OF THE CIRCLE. PUT THEM HERE. (Plan to arrange fractional circles in a line, smallest to largest.) PICK UP THREE THIRDS OF THE CIRCLE. PUT THEM HERE. MOVE THE THREE THIRDS SO THAT THEY MAKE THE SAME SHAPE AS THIS CIRCLE.</p>	<p>p13; 8 p14; 13 p16; 35</p>	
<p>5. <u>To recognize one eighth.</u></p> <p>Place before the student some paper or cardboard cut-outs of a circle (diameter at least six inches), 1/2 circle, 1/4 circle, and 1/8 circle.</p> <p>LOOK AT THESE PICTURES. POINT TO (PICK UP, etc.) THE PIECE THAT IS ONE-EIGHTH OF A CIRCLE.</p>	<p>p13; 8 p14; 13 p16; 35</p>	
<p>6. <u>To recognize one tenth and its multiples.</u></p> <p>Provide a long stick and 20 short sticks cut so that the long stick is the same length as 10 short sticks. For example, use dowel rod or strips of paper. Show the student the first two strips.</p>	<p>p13; 8 p14; 13 p16; 35</p>	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>HERE ARE SOME SHORT STICKS AND A LONG STICK. PUT SHORT STICKS (STRIPS OF PAPER) BESIDE THE LONG STICK, LIKE THIS, UNTIL YOU GET TO THE END OF THE LONG STICK. HOW MANY SHORT STICKS EQUAL ONE LONG STICK? WHAT FRACTION IS ONE SHORT STIC</p> <p>Indicate 1, 2, 3, . . . short sticks.</p> <p>WHAT FRACTION OF THE LONG STICK IS THIS? (Response: one tenth, two tenths, three tenths, . . . .)</p> <p>7. <u>To add fractions with the same denominator.</u></p> <p>WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:</p> <p><math>1/3 + 2/3 =</math>      <math>3/8 + 2/8 =</math>      <math>1/7 + 2/7 =</math></p> <p><math>2/6 + 3/6 =</math>      <math>3/10 + 4/10 =</math>      <math>1/4 + 1/4 =</math></p> <p>8. <u>To subtract fractions with the same denominator.</u></p> <p>WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS.</p> <p><math>3/4 - 1/4 =</math>      <math>8/9 - 3/9 =</math>      <math>9/10 - 3/10 =</math></p> <p><math>5/8 - 4/8 =</math>      <math>6/10 - 4/10 =</math>      <math>3/5 - 1/5 =</math></p> <p>9. <u>To compare using whole and part units (e.g., <math>1\ 1/2</math>, <math>3\ 1/2</math>).</u></p> <p>Provide a set of "comparing sticks" (or "measuring sticks") of equal length (8-10 inches) constructed of flat strips of wood or strips of cardboard. One set consists of: whole stick, whole stick with one half indicated, whole stick with thirds indicated, etc., for fourths, eighths, tenths (and sixteenths, if taught).</p> <div><div>whole stick</div><div>one half indicated</div><div>thirds indicated</div><div>fourths indicated</div></div>		



(Abilities and assessments)

Provide or indicate objects which can be compared (measured). For example, students can measure lengths of tables, desks, cabinets, rooms, heights of desks, bookcases, students. Give the student the "whole" stick.

USE THIS STICK. FIND OUT HOW MANY WHOLE STICKS LONG (HIGH, etc.) THIS TABLE (CABINET, STUDENT, etc.) IS.

Give the student the stick with the one-half mark.

USE THIS STICK. FIND OUT HOW MANY STICKS AND HALF STICKS LONG THIS CHALKBOARD IS.

Repeat, using other objects to be measured and other measuring sticks.

10. To convert whole numerals to fractions and vice versa.

I AM GOING TO TELL YOU SOME NUMERALS. CHANGE THE NUMERALS TO THE FRACTION I TELL YOU: WRITE SEVEN IN THIRDS. WRITE FIVE IN EIGHTHS. WRITE TWO IN TENTHS. WRITE SIX IN FOURTHS.

WRITE THESE NUMERALS IN THE FRACTION SHOWN:

$$3 = \frac{\quad}{4} \quad 3 = \frac{\quad}{3} \quad 3 = \frac{\quad}{8} \quad 10 = \frac{\quad}{10} \quad 11 = \frac{\quad}{2}$$

$$\frac{4}{4} + \frac{1}{4} = \quad \frac{9}{3} + \frac{2}{3} = \quad \frac{2}{2} + \frac{1}{2} = \quad \frac{10}{5} + \frac{2}{5} = \quad \frac{16}{8} + \frac{4}{8} = \quad \frac{24}{6} + \frac{3}{6} =$$

11. To add fractions to whole numbers (converted to fractions) when the denominators are alike.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

12. To add mixed numbers with the same denominator.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 3 \frac{1}{3} \\ + 6 \frac{2}{5} \\ \hline \end{array} \quad \begin{array}{r} 7 \frac{1}{8} \\ + 4 \frac{2}{10} \\ \hline \end{array} \quad \begin{array}{r} 10 \frac{1}{4} \\ + 12 \frac{2}{4} \\ \hline \end{array}$$

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies

(Abilities and assessments)

13. To subtract fractions from whole numbers (converted to fractions) when the denominators are alike.

WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:

$$\begin{array}{r} \frac{4}{4} - \frac{9}{3} = \frac{10}{5} \\ \frac{1}{4} - \frac{2}{3} = \frac{4}{5} \end{array}$$

$$\frac{30}{10} - \frac{5}{10} = \frac{5}{8} - \frac{3}{8} = \frac{8}{2} - \frac{1}{2} =$$

14. To subtract mixed numbers with like denominators.

WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:

$$\begin{array}{r} 6\frac{7}{8} - 5\frac{8}{10} = 12\frac{7}{7} - 20\frac{2}{3} = 35\frac{3}{4} \\ - 3\frac{2}{8} - 4\frac{1}{10} = - 2\frac{3}{7} - 3\frac{1}{3} = - 32\frac{1}{4} \end{array}$$

# DECIMAL--FRACTION CONVERSIONS

1. To write tenths and hundredths in decimal notation.

Write numbers using fractions in tenths and hundredths on the chalkboard or on a dittoed sheet. For example, use 1/10, 5/10, 8/10, 9/100, 12/100, 20/100, 35/100, 57/100, 98/100.

WRITE THESE NUMBERS AS DECIMALS.

Alternatively, dictate the numbers.

2. To use multiples of tenths and hundredths (e.g., 2/10 or .2, 3/10 or .3, 30/100 or .30, 75/100 or .75).

Provide a dittoed sheet listing decimal and common fractions in tenths and hundredths. For example, use .4, 3/10, .25, 30/100.

WRITE EACH OF THESE NUMERALS ANOTHER WAY.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p70; 6
		p70; 6

## (Abilities and assessments)

Alternatively, dictate the numerals.

WRITE EACH OF THESE NUMERALS TWO WAYS.

3. To write numbers consisting of whole numbers and decimal fractions (e.g., 7.2, 12.4, 1.73, 25.24).

Write mixed numbers with fractions in tenths and hundredths on the chalkboard or on a dittoed sheet.

WRITE THESE AS DECIMALS:

6-7/10, 11-2/10, 25-9/10, 6-4/100, 34-15/100, 48-99/100

I AM GOING TO TELL YOU SOME NUMBERS. WRITE THEM ON YOUR PAPER USING DECIMALS.

5.3, 18.2, 87.9, .21, 6.25, 42.35, etc.

4. To perform basic arithmetic operations with numerals expressed in decimals.

WRITE THE ANSWERS TO THESE PROBLEMS.

Give the student a dittoed sheet of problems. Following are some types of problems which can be used:

$$\begin{array}{r} .2 \\ .3 \end{array} \begin{array}{r} .6 \\ .8 \end{array} \begin{array}{r} 1.3 \\ 4.5 \end{array} \begin{array}{r} 6.7 \\ 2.9 \end{array} \begin{array}{r} 3.8 \\ 9.4 \end{array} \begin{array}{r} 1.9 \\ .5 \end{array} \begin{array}{r} 4.0 \\ 7.5 \end{array} \begin{array}{r} .42 \\ .16 \end{array} \begin{array}{r} .17 \\ .36 \end{array} \begin{array}{r} .85 \\ .77 \end{array} \begin{array}{r} 4.25 \\ 3.41 \end{array} \begin{array}{r} 6.18 \\ 1.37 \end{array}$$
$$\begin{array}{r} 5.71 \\ 1.83 \end{array} \begin{array}{r} 2.78 \\ 8.98 \end{array} \begin{array}{r} .5 \\ -.2 \end{array} \begin{array}{r} 7.3 \\ -2.1 \end{array} \begin{array}{r} 9.1 \\ -2.5 \end{array} \begin{array}{r} 17.6 \\ -5.8 \end{array} \begin{array}{r} .86 \\ -.21 \end{array} \begin{array}{r} .78 \\ -.19 \end{array} \begin{array}{r} 25.24 \\ -11.86 \end{array} \begin{array}{r} .3 \\ x.2 \end{array} \begin{array}{r} .5 \\ x.7 \end{array} \begin{array}{r} 3.4 \\ x.4 \end{array}$$
$$\begin{array}{r} 6.2 \\ x1.4 \end{array} \begin{array}{r} 35.6 \\ x2.5 \end{array} \begin{array}{r} 80.4 \\ x7.3 \end{array} \begin{array}{r} .31 \\ x.23 \end{array} \begin{array}{r} .55 \\ x.16 \end{array} \begin{array}{r} .84 \\ x.20 \end{array} \begin{array}{r} 1.73 \\ x.15 \end{array} \begin{array}{r} 9.62 \\ x.87 \end{array} \begin{array}{r} 3.02 \\ x.62 \end{array} \begin{array}{r} .62 \\ x7 \end{array} \begin{array}{r} 2.54 \\ x8 \end{array}$$
$$\begin{array}{r} 1.01 \\ x15 \end{array} \begin{array}{r} 682 \\ x.8 \end{array} \begin{array}{r} 35 \\ x.22 \end{array} \begin{array}{r} 2)8.6 \\ 4)34.8 \end{array} \begin{array}{r} 8)76.48 \\ 5)92.85 \end{array}$$

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p70; 6

(Abilities and assessments)

MEASUREMENT--TIME

1. To distinguish between the long and short hands on the clock.

Provide a teaching clock or a large clock.

HERE IS A CLOCK. POINT TO (SHOW ME, etc.) THE HANDS OF THE CLOCK. POINT TO THE LONG HAND. POINT TO THE SHORT HAND.

2. To demonstrate the direction that the hands move.

Provide a teaching clock or a large clock.

HERE IS A CLOCK. SHOW ME WHICH WAY THE LONG HAND OF THE CLOCK GOES AROUND. SHOW ME WHICH WAY THE SHORT HAND OF THE CLOCK GOES AROUND. PUSH THE LONG HAND THE WAY THAT IT GOES AROUND. PUSH THE SHORT HAND THE WAY THAT IT GOES AROUND.

3. To read hours aloud from a clock.

Provide a teaching clock or a large clock which can be set conveniently. Set the clock "on the hour."

WHAT TIME IS IT?

4. To set a specified hour on a clock face.

Provide a teaching clock or a large clock which can be set conveniently.

HERE IS A CLOCK. SET THE CLOCK SO THAT IT IS ONE O'CLOCK (TWO O'CLOCK, etc., giving times "on the hour.").

5. To express hours in written form.

ON YOUR PAPER SHOW HOW TO WRITE TWO O'CLOCK (THREE O'CLOCK, etc., using times "on the hour.").

Provide a clock face or large clock which can be set conveniently. Set the clock "on the hour."

WRITE THE TIME.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p14; 25	
	p14; 25	
	p13; 4 p14; 25	p71; 8
	p14; 25	p62; 4
	p13; 4	

## (Abilities and assessments)

6. To express half hours in written form, from a clock or from dictation.  
Provide a clock face or large clock which can be set conveniently. Set the clock "on the half hour."  
WRITE THE TIME.  
ON YOUR PAPER, SHOW HOW TO WRITE 1:30 (2:30, 3:30, etc., using times "on the half hour.").
7. To read aloud minutes from a clock.  
HERE IS A CLOCK. THE LONG HAND POINTS TO THE MINUTES.  
Set the clock at each minute, in turn.  
READ THE MINUTES ON THE CLOCK.
8. To express minutes in written form, from a clock or from dictation.  
HERE IS A CLOCK. WRITE THE NUMBER OF MINUTES THAT THE CLOCK TELLS NOW.  
Set the clock for different times, repeating the instruction for each.  
ON YOUR PAPER WRITE THESE MINUTES: ONE MINUTE, FOUR MINUTES, TEN MINUTES, . . . .
9. To recognize that sixty minutes equal one hour.  
HERE IS A CLOCK. HOW MANY MINUTES EQUAL ONE HOUR?
10. To read aloud hours and minutes from a clock.  
HERE IS A CLOCK. I WILL SET THE HANDS AND YOU TELL ME THE TIME. WHAT TIME IS IT? I AM MOVING THE HANDS. WHAT TIME IS IT?  
Continue, for other times.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 4	
	p13; 4	p62; 4
		p71; 8
	p13; 4	p62; 4

(Abilities and assessments)

11. To express hours and minutes in written form from a clock and from dictation.  
HERE IS A CLOCK. WRITE THE TIME THAT THE CLOCK TELLS NOW. BE SURE TO WRITE HOURS AND MINUTES.  
Set the clock for different times, repeating for each: WRITE THE TIME THAT THE CLOCK TELLS NOW.  
ON YOUR PAPER SHOW HOW TO WRITE THESE TIMES: 5:00, 12:00, 3:02, 4:10, 7:18, 8:25, 9:30, 10:49, 11:52, 12:59, etc.
12. To read aloud minutes by fives from a clock.  
Set times on a clock at the usual five-minute intervals. For example, set 3:05, 5:10, 8:35.  
HERE IS A CLOCK. I WILL SET THE HANDS AND YOU TELL ME THE TIME. WHAT TIME?
13. To distinguish between before and after the hour.  
HERE IS A CLOCK. READ THE CLOCK AS TIME "BEFORE THE HOUR."  
Set the clock for "before the hour" times. For example, use 2:50, 1:45, 7:40.  
READ THE CLOCK AS TIME "AFTER THE HOUR."  
Set the clock for "after the hour" times. For example, use 5:10, 8:20, 10:16.  
READ THE CLOCK AS TIME "BEFORE THE HOUR" OR TIME "AFTER THE HOUR."
14. To read aloud time by the half-hour and quarter-hour from a clock.  
HERE IS A CLOCK. I WILL SET THE CLOCK FOR DIFFERENT TIMES. READ THE TIME, USING HALF-HOUR AND QUARTER-HOUR TIMES.
15. To read military time from a clock.  
Provide an ordinary teaching clock or a large clock which can be set easily. Set the clock for various times. In each case ask the question:

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 4	p62; 4
	p13; 4	
M 99	p14; 25,26	

(Abilities and assessments)

WHAT TIME IS IT IN MILITARY TIME?

Provide a teaching clock calibrated in military time, or a large clock so calibrated. Set the clock for various times. In each case, ask the question:

WHAT TIME IS IT IN MILITARY TIME?

To read written military time.

Provide a list of military times, written on the chalkboard or on a dittoed sheet. For example, the list could include 0100, 0330, 0509, 1110, 1417, 1827, 2350.

READ THESE MILITARY TIMES TO ME.

To write military time.

Provide a teaching clock calibrated in military time or a large clock so calibrated. Set the clock for various times. In each case, give the instruction:

WRITE THE MILITARY TIME ON YOUR PAPER.

I AM GOING TO TELL YOU SOME MILITARY TIMES. WRITE EACH ONE ON YOUR PAPER.

To convert civilian time to military time and vice versa.

IF IT IS 9:10 IN THE MORNING (11:17 IN THE MORNING, 3:00 IN THE AFTERNOON, etc.) BY A CIVILIAN CLOCK, WHAT TIME IS IT IN MILITARY TIME? TELL ME (WRITE) YOUR ANSWER.

A MILITARY WATCH READS 0905 (1010, 1215, 1545, 1738, etc.). WHAT TIME IS THAT ON A CIVILIAN CLOCK? TELL ME (WRITE) YOUR ANSWER.

Provide a list of civilian time readings (chalkboard or dittoed sheet).

HERE ARE SOME TIMES FROM A CIVILIAN WATCH. TELL ME (WRITE) EACH ONE IN MILITARY TIME.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p71; 8

(Abilities and assessments)

Provide a list of military time readings (chalkboard or dittoed sheet).

HERE ARE SOME TIMES FROM A MILITARY CLOCK. TELL ME (WRITE) EACH ONE IN CIVILIAN TIME.

19. To name and count the days of the week.

TELL ME THE NAMES OF THE DAYS OF THE WEEK. COUNT THE DAYS OF THE WEEK. START WITH "SUNDAY IS ONE (THE FIRST DAY)."

20. To count the days of the month.

HERE IS A CALENDAR FOR THIS MONTH. COUNT THE DAYS OF THIS MONTH TO TODAY. COUNT THE DAYS OF THE MONTH ALL THE WAY TO THE END OF THE MONTH.

21. To name and count the months in a year.

TELL ME THE NAMES OF THE MONTHS IN A YEAR. COUNT THE MONTHS. START WITH "JANUARY IS THE FIRST MONTH."

22. To say or write the correct number of days in a year.

TELL ME HOW MANY DAYS THERE ARE IN A YEAR. WRITE THE NUMERAL THAT SHOWS HOW MANY DAYS THERE ARE IN A YEAR.

23. To be able to read a calendar.

Provide a calendar for the current year which is printed or pasted on large paper or cardboard. Ask the student questions which are appropriate to the current year, the season, the month, the day, and to the student himself. For example:

HERE IS A CALENDAR FOR THIS YEAR. WHAT YEAR IS IT NOW? WHAT MONTH IS IT NOW? SHOW ME (POINT TO, etc.) THE MONTH OF YOUR BIRTHDAY. IN WHAT MONTH DO WE HAVE CHRISTMAS? WHAT MONTH DID SCHOOL START? POINT TO TODAY ON THE CALENDAR. POINT TO YOUR BIRTHDAY. POINT TO CHRISTMAS.

COUNT THE NUMBER OF DAYS IN THIS MONTH. COUNT THE NUMBER OF DAYS IN FEBRUARY. COUNT THE NUMBER OF DAYS IN ONE WEEK. COUNT THE NUMBER OF DAYS UNTIL \_\_\_\_\_ (a coming event.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p14; 13	
	p14; 13	



## (Abilities and assessments)

WHAT YEAR WILL COME NEXT? WHAT MONTH WILL COME NEXT? WHAT IS THE NAME OF TOMORROW? WHAT IS THE DATE TOMORROW? POINT TO ONE WEEK FROM TODAY. WHAT IS THE DATE OF ONE WEEK FROM TODAY? POINT TO ONE MONTH FROM TODAY. WHAT DAY DOES ONE MONTH FROM TODAY COME ON?

MEASUREMENT--LENGTH (U.S. CUSTOMARY)

Note: Teach abbreviations and their use as appropriate in all measurement activities.

1. To measure the length of an object using an uncalibrated object.

Provide a 10-inch line marked on a piece of paper and a strip of cardboard or heavy paper two inches long. Do not tell the student the dimensions.

MEASURE THIS LINE WITH THIS PIECE OF PAPER. HOW LONG IS THE LINE? (type of response: five "cardboards" long)

Show the student how to measure a span (the length of the fully extended hand from the tip of the thumb to the tip of the little finger). It is not necessary to use the term "span."

MEASURE THE LENGTH OF THIS TABLE. USE A SPAN (THE LENGTH OF YOUR HAND STRETCHED OUT).

2. To measure the length of an object using an inch.

Provide objects whose lengths are whole inches. For example use 9 inches of dowel rod, a 6-inch pencil, an 8-inch book, a 1-foot ruler, lines drawn on paper. Provide a strip of cardboard or wood one inch long.

THIS STRIP OF CARDBOARD (WOOD) IS ONE INCH LONG. HOW MANY INCHES LONG IS THIS STICK (PENCIL, LINE, etc.)?

For older students, provide objects as above and an ordinary one-foot ruler.

HERE IS A RULER. HOW MANY INCHES LONG IS THIS STICK (PENCIL, LINE, etc.)?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 5 p14; 13	
	p13; 5	

## (Abilities and assessments)

3. To measure the length of an object to half-inch precision.  
Provide objects with lengths in whole and half inches. For example, use 5-1/2 inches of dowel rod, an 8-1/2 inch sheet of paper, lines drawn on paper. Provide a strip of cardboard or wood one inch long, with a mark at 1/2 inch.  
  
THIS STRIP OF CARDBOARD IS ONE INCH LONG. THE MARK HERE SHOWS ONE-INCH INCH. HOW LONG IS THIS STICK (PAPER, LINE, etc.)?  
  
For older students, provide objects as above and an ordinary one-foot ruler.  
  
HERE IS A RULER. HOW LONG IS THIS STICK (PENCIL, etc.)?
4. To measure the length of an object to quarter-inch precision.  
Provide objects with lengths in quarter-inches. For example, use 6-1/4 inches of dowel rod, a 3-1/2 inch nail, a 7-3/4 inch length of yarn, lines drawn on paper. Provide an ordinary 1-foot ruler.  
  
HERE IS A RULER. FIND OUT HOW LONG THIS STICK (NAIL, etc.) IS. TELL THE LENGTH TO THE NEAREST ONE-FOURTH INCH.
5. To measure the length of an object to one-eighth-inch precision.  
Provide objects to measure and an ordinary 1-foot ruler, marked in eighths of an inch.  
  
HERE IS A RULER. FIND THE LENGTH OF THIS STICK (PAPER, STRING, etc.) TO THE NEAREST EIGHTH-INCH.
6. To recognize that twelve inches equal a foot.  
Give the student a 1-foot ruler.  
  
HOW MANY INCHES ARE IN ONE FOOT?
7. To measure the length of an object using a foot.  
Provide or have available, objects or distances with dimensions in whole feet. For example, use a 2-foot strip of paper, a 3-foot length of yarn, a 4-foot table. Provide an ordinary 1-foot ruler.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 5 p15; 27	
	p13; 5 p15; 27	
	p15; 27	
	p15; 27	
	p14; 13 p15; 27	p61; 2

## (Abilities and assessments)

HERE IS A RULER ONE FOOT LONG. HOW MANY FEET LONG IS THIS YARN (TABLE, etc.)?

8. To convert foot measures into inch measures and vice versa.

JOE ATE A FOOT-LONG HOT DOG. HOW MANY INCHES OF HOT DOG DID HE EAT? SUZIE BOUGHT THREE FEET OF DRESS MATERIAL. HOW MANY INCHES DID SHE BUY? BILL CUT A BOARD 24 INCHES LONG. HOW MANY FEET LONG WAS THE BOARD? TOM IS 48 INCHES TALL. HOW MANY FEET TALL IS HE?

WRITE THE ANSWERS TO THESE PROBLEMS:

$$4 \text{ ft} = \text{ \_\_\_\_\_\_ } \text{ in; } 10 \text{ ft} = \text{ \_\_\_\_\_\_ } \text{ in; } 72 \text{ in} = \text{ \_\_\_\_\_\_ } \text{ ft; } 60 \text{ in} = \text{ \_\_\_\_\_\_ } \text{ ft}$$

9. To recognize that three feet equal one yard.

HERE IS A YARDSTICK. HOW MANY FEET ARE IN A YARD?

10. To measure one-half yard and one-quarter yard.

Provide a stick or strip of paper one yard long with marks at one quarter, one half, and three quarters of a yard. Provide objects with linear dimensions in quarter yards. For example, use 2-1/4 yards of yarn, 5-1/2 yards of ribbon, a 7-3/4-yard line on the floor or playground.

HERE IS A YARDSTICK WITH MARKS HERE FOR ONE-QUARTER YARD, ONE-HALF YARD, AND THREE-QUARTERS YARD. HOW LONG IS THIS YARN (RIBBON, etc.)?

11. To measure one-third yard and two-thirds yard.

Provide a stick or strip of paper one yard long with marks at 1/3 and 2/3 yard. Provide objects with linear dimensions in 1/3 yards. For example, use 1/3 yard string, 2/3 yard of elastic, 2-1/3 yards of dress material.

HERE IS A YARDSTICK WITH MARKS FOR ONE-THIRD YARD AND TWO-THIRDS YARD. HOW LONG IS THIS STRING (DRESS MATERIAL, etc.)?

## TEACHER TIPS

Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 5	
	p13; 5	

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
M 101		p61; 2
	p13; 5	p61; 2
	p14; 13	
<p>12. <u>To convert yards to feet and vice versa.</u></p> <p>JERRY RAN 10 YARDS. HOW MANY FEET DID HE RUN? RON SWAM ACROSS THE POOL. IT WAS 36 FEET WIDE. HOW MANY YARDS DID HE SWIM? MARY USED 12 FEET OF STRING TO TIE A PACKAGE. HOW MANY YARDS OF STRING DID SHE USE? JEAN DREW A PICTURE ONE YARD HIGH. HOW MANY FEET HIGH WAS IT?</p> <p>WRITE THE ANSWERS TO THESE PROBLEMS:</p> <p>8 yd = _____ ft; 2 yd = _____ ft; 9 ft = _____ yd; 3 ft = _____ yd</p> <p>13. <u>To measure using yards, to the nearest yard.</u></p> <p>Provide a yardstick and objects or distances that are close to whole yards in length. For example, use approximately nine feet of string, ten yards marked off on the playground, the side of a building.</p> <p>HERE IS A YARDSTICK. HOW MANY YARDS LONG IS THIS STRING (RACETRACK, etc.)?</p> <p>14. <u>.0 estimate the relative distance of one mile.</u></p> <p>TELL ME SOMETHING THAT IS ABOUT ONE MILE AWAY. (expected response: my house, the river, the PX, etc.) TELL ME TWO THINGS THAT ARE ABOUT ONE MILE FROM EACH OTHER.</p> <p>15. <u>To read road signs that indicate the mileage between two cities.</u></p> <p>Provide large cardboard replicas of road signs from your area if they are expressed in mileage. Otherwise, provide replicas of signs from the students' home areas or other actual areas.</p> <p>HERE IS A ROAD SIGN. HOW FAR IS IT FROM _____ (name of city) TO _____ (name of another city).</p> <p>16. <u>To recognize that the speed of a car is measured in miles per hour.</u></p> <p>If possible, look at the speedometer of a real car. Alternatively, provide a mock-up of a speedometer. If the speedometer has more than one scale, indicate the mph scale.</p> <p>WHAT DOES THIS TELL US ABOUT THE CAR? (probable response: how fast it's going) HOW DO WE MEASURE HOW FAST?</p>		

(Abilities and assessments)MEASUREMENT--LINEAR (METRIC SYSTEM)

Note: If an example of a sequence of Suggested Teaching Activities is desired, substitute metric units for the U.S. Customary units in the activities suggested for Measurement--Linear (U.S. Customary) ability #12.

1. To measure the length of an object using centimeters.

Provide objects or distances with dimensions in whole centimeters. For example a 5-cm pencil, a 12-cm strip of paper, a 50-cm length of yarn. Provide a ruler marked in centimeters. For example, use a foot ruler with cm markings on one side.

HERE IS A METRIC RULER. HOW MANY CENTIMETERS LONG IS THIS PENCIL (PAPER, etc.)?

2. To measure the length of an object using meters.

Provide objects or distances with dimensions approximately in whole meters. For example, a 2-meter length of rope, 10 meters marked off on the playground. Provide a meter stick or a dowel rod one meter long.

HERE IS A METER STICK (STICK ONE METER LONG). HOW MANY METERS LONG IS THIS ROPE (RACETRACK, etc.)?

3. To estimate the relative distance of a kilometer.

TELL ME SOMETHING THAT IS ABOUT ONE KILOMETER FROM HERE. TELL ME TWO THINGS (BUILDINGS, LOCATIONS, etc.) THAT ARE ABOUT ONE KILOMETER APART.

4. To read road signs that indicate kilometers between two cities.

Provide large cardboard replicas of local roadsigns if distances are given in kilometers. Otherwise, provide replicas of signs between actual locations in other areas.

HERE IS A ROADSIGN LIKE THE ONE AT THE EDGE OF \_\_\_\_\_ (name of same city) TO \_\_\_\_\_ (name of city on the sign). HOW FAR IS IT FROM

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p14; 13	
	p14; 13	

(Abilities and assessments)

5. To convert commonly used linear measurements from the metric system to the U.S. Customary system and vice versa.

MRS. JONES NEEDS SOME KITCHEN SHELF PAPER 30 CENTIMETERS WIDE. HOW MANY INCHES WIDE IS THE PAPER? IT IS 10 KILOMETERS FROM THE GATE OF A BASE TO THE NEAREST CITY. HOW MANY MILES IS IT TO THE CITY? WHAT IS YOUR HEIGHT IN INCHES? WHAT IS IT IN CENTIMETERS?

WRITE THE ANSWERS TO THESE PROBLEMS:

$$\begin{array}{rclclcl} 10 \text{ cm} & = & \underline{\hspace{1cm}} & \text{in} & 25 \text{ cm} & = & \underline{\hspace{1cm}} & \text{in} & 36 \text{ in} & = & \underline{\hspace{1cm}} & \text{cm} & 15 \text{ in} & = & \underline{\hspace{1cm}} & \text{cm} \\ 100 \text{ cm} & = & \underline{\hspace{1cm}} & \text{in} & ? \text{ km} & = & \underline{\hspace{1cm}} & \text{mi} & 24 \text{ in} & = & \underline{\hspace{1cm}} & \text{cm} & 5 \text{ mi} & = & \underline{\hspace{1cm}} & \text{km} \end{array}$$

MEASUREMENT--VOLUME AND WEIGHT (U.S. CUSTOMARY)

1. To measure using teaspoons.

Provide a standard one-teaspoon measuring spoon and materials which are commonly measured with teaspoons. For example, use water, milk, corn syrup, instant coffee, salt, soda, cinnamon, tea.

HERE IS A MEASURING SPOON WHICH MEASURES ONE TEASPOON. MEASURE ONE (TWO, THREE) TEASPOON(S) OF MILK (SYRUP, COFFEE, SALT, etc.).

2. To read the word "teaspoon."

Provide cooking recipes which have "teaspoon" written out.

WHAT IS THIS WORD?

3. To measure using a one-half teaspoon measure and a one-quarter teaspoon measure.

Provide standard one-half and one-quarter teaspoon measuring spoons and materials which are commonly measured with such spoons. For example, use water, vanilla, soda, salt, spices.

HERE IS A ONE-HALF (ONE-QUARTER) TEASPOON MEASURING SPOON. MEASURE ONE-HALF (ONE-QUARTER) TEASPOON OF VANILLA (SODA, NUTMEG, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 38	
	p16; 38	
	p16; 38	

## (Abilities and assessments)

4. To measure using tablespoons.

Provide a standard one-tablespoon measuring spoon and materials which are commonly measured in tablespoons. For example, use milk, salad oil, corn syrup, shortening, flour, baking powder, cornstarch, sugar, coffee.

HERE IS A MEASURING SPOON WHICH MEASURES ONE TABLESPOON. MEASURE ONE (TWO, THREE) TABLESPOON(S) OF MILK, (OIL, SHORTENING, FLOUR, etc.).

5. To read the word "tablespoon."

Provide cooking recipes which have "tablespoon" written out.

WHAT IS THIS WORD?

6. To measure liquid ounces.

Place before the student a standard 8-ounce measuring cup (of clear glass or plastic) with 1-ounce units marked on the side. Also give him a container of the milk commonly used in your area.

HERE IS A CARTON (BOTTLE, etc.) OF MILK. HERE IS A MEASURING CUP. HOW MANY OUNCES OF MILK ARE IN THE CARTON (BOTTLE, etc.)?

HERE IS A MEASURING CUP. MEASURE THREE (SIX, EIGHT, etc.) OUNCES OF WATER IN THE CUP.

7. To read the word "ounces."

Provide cooking recipes which have "ounces" written out. Hint: European recipes, especially British, are most likely to use this term. Alternatively, provide empty bottles, food cans, detergent cartons, etc., having the word "ounces" printed or embossed on them.

WHAT IS THIS WORD?

8. To measure using cups.

Provide standard 8-ounce measuring cups. For liquids, use the type of cup which holds more than one cup and has fractional cups and ounces marked on the side. These cups are usually made of pyrex or

M 41

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 38	
	p16; 38	
M 103	p14; 13	
	p16; 38	



(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>transparent plastic. For dry materials, use the type of cup which, when used, is filled to the top and levelled off. These cups are usually made of aluminum or opaque plastic. Also provide materials which are commonly measured in cups. For example, use water, milk, salad oil, shortening, flour, sugar, macaroni, dehydrated potatoes, laundry detergent.</p> <p>HERE IS A MEASURING CUP WHICH IS USED TO MEASURE LIQUIDS. MEASURE ONE CUP OF MILK (SALAD OIL, etc.).</p> <p>HERE IS A MEASURING CUP WHICH IS USED TO MEASURE DRY THINGS. MEASURE ONE CUP OF FLOUR (SHORTENING, SUGAR, LAUNDRY DETERGENT, etc.).</p> <p>9. To measure <u>one-half cup</u>.</p> <p>Provide standard measuring cups. For liquids, use the same 8-ounce measure described in ability #8 above. For dry materials, use an aluminum or plastic one-half-cup measuring cup of the type described in ability #8 above. Also provide materials which are commonly measured in one-half cups. For example, use water, milk, corn syrup, shortening, flour, sugar, oatmeal, rice, laundry detergents, laundry starch.</p> <p>HERE IS A MEASURING CUP WHICH IS USED TO MEASURE LIQUIDS. MEASURE ONE-HALF CUP OF MILK (SALAD OIL, etc.).</p> <p>HERE IS A HALF-CUP MEASURING CUP WHICH IS USED TO MEASURE DRY THINGS. MEASURE ONE-HALF CUP OF FLOUR (SUGAR, LAUNDRY STARCH, etc.).</p> <p>10. To measure <u>one-quarter (one-fourth) cup and one-third cup</u>.</p> <p>Provide standard measuring cups. For liquids, use the same 8-ounce measure described in ability #8 above. For dry materials, use aluminum or plastic one-third- and one-quarter-cup measures of the type described in ability #8 above. Also provide materials which are commonly measured in third- and fourth-cups. For example, use water, milk, salad oil, shortening, flour, sugar, cornstarch, laundry detergent, laundry starch.</p> <p>HERE IS A MEASURING CUP WHICH IS USED TO MEASURE LIQUIDS. MEASURE ONE-THIRD (ONE-FOURTH) CUP OF MILK (WATER, etc.).</p> <p>HERE IS ONE-THIRD (ONE-FOURTH) CUP MEASURING CUP WHICH IS USED TO MEASURE DRY THINGS. MEASURE ONE-THIRD (ONE-FOURTH) CUP OF SUGAR (CORNSTARCH, LAUNDRY DETERGENT, etc.).</p>		<p>p16; 38</p> <p>p16; 38</p>	



(Abilities and assessments)

11. To measure three-fourths of a cup.

Provide the same one-quarter measuring cup described in ability #10 above. Also provide materials which are commonly measured by three-fourths of a cup. For example, use water, milk, salad oil, flour, sugar, shortening.

HERE IS A MEASURING CUP WHICH IS USED TO MEASURE LIQUIDS. MEASURE THREE-FOURTHS OF A CUP OF SALAD OIL (WATER, etc.).

HERE IS A ONE-FOURTH-CUP MEASURING CUP WHICH IS USED TO MEASURE DRY THINGS. MEASURE THREE-FOURTHS OF A CUP OF SHORTENING (SUGAR, etc.).

12. To read the word "cup."

Provide recipes which have the word "cup" written out. Provide food cans which tell the number of cups the can contains.

WHAT IS THIS WORD?

13. To recognize that two cups equal a pint.

Provide four cups of milk (water, etc.) poured into standard measuring cups, one cupful each. Provide an empty one-pint jar or one-pint milk container.

HERE ARE SOME CUPS OF MILK AND A ONE-PINT JAR. HOW MANY CUPS OF MILK WOULD IT TAKE TO FILL THE PINT JAR (CARTON)?

14. To measure using pints.

Provide a standard one-pint measuring container, or a one-pint jar, carton, or bottle (perhaps a soda pop bottle). Provide a saucepan and a supply of water or have running water available.

HERE IS A CONTAINER (JAR, etc.) WHICH HOLDS ONE PINT WHEN FILLED TO HERE (TO THE TOP, etc.). MEASURE ONE PINT (TWO PINTS, etc.) OF WATER INTO THE SAUCEPAN.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 38	
	p16; 38	



(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>15. To read the word "pints."</p> <p>Provide empty containers having the word "pint(s)" printed or embossed on them.</p> <p>WHAT IS THIS WORD?</p> <p>16. To recognize that two pints equal a quart.</p> <p>Provide three one-pint jars and a one-quart jar (or pop bottles, milk cartons, etc., except that the containers should all be of the same type). Fill the three one-pint containers with water.</p> <p>HERE ARE SOME PINTS OF WATER AND A ONE-QUART JAR (BOTTLE, etc.). HOW MANY PINTS OF WATER WOULD IT TAKE TO FILL THE QUART JAR (BOTTLE, etc.)?</p> <p>17. To measure using quarts.</p> <p>Provide a standard one-quart measuring container, or a one-quart jar, carton, or bottle. Provide a pan of water or have running water available.</p> <p>HERE IS A CONTAINER (JAR, etc.) WHICH HOLDS ONE QUART WHEN FILLED TO HERE (TO THE TOP, etc.). MEASURE ONE QUART (TWO QUARTS, etc.) OF WATER.</p> <p>18. To read the word "quart."</p> <p>Provide empty containers having the word "quart(s)" printed or embossed on them.</p> <p>WHAT IS THIS WORD?</p> <p>19. To recognize that four quarts equal one gallon.</p> <p>Provide a one-gallon jar or jug and six one-quart containers, each filled with water.</p> <p>HERE ARE SOME QUARTS OF WATER. HERE IS A ONE-GALLON JUG (JAR). HOW MANY QUARTS OF WATER WOULD IT TAKE TO FILL THE GALLON JUG WITH WATER?</p>	<p>p16; 38</p>	

(Abilities and assessments)

20. To read the word "gallon."

Provide empty containers having the word "gallon(s)" printed or embossed on them.

WHAT IS THIS WORD?

21. To measure using pounds.

Provide a bathroom scale and a household scale (for example, the type that measures to 24 pounds). Provide objects to weigh. For example, use a sack of apples, a pail of water.

HERE IS A SCALE LIKE ONE YOU MIGHT USE AT HOME. WHAT DOES THIS BAG OF APPLES WEIGH?

HERE IS A BATHROOM SCALE. WHAT DO YOU WEIGH?

22. To read the word "pounds."

Provide empty containers having the word "pound(s)" printed or embossed on them. For example, use butter cartons, detergent cartons, food cans.

WHAT IS THIS WORD?

23. To measure using dry ounces.

Provide scales which measure in ounces. For example, use a postage scale, a 25-pound household scale. Provide materials which might be measured in dry ounces. For example, use letters and packages "ready to mail," small quantities of food in containers with negligible weight.

HERE IS A SCALE WHICH MEASURES IN OUNCES. HOW MANY OUNCES DOES THIS LETTER (PACKAGE TO MAIL, STICK OF BUTTER, etc.) WEIGH?

MEASUREMENT--VOLUME AND WEIGHT (METRIC)

Note: If an example of a sequence of Suggested Teaching Activities is desired, substitute metric units for the U.S. Customary units in the activities suggested for Measurement--Volume and Weight (U.S. Customary), ability #6.

M 45

M 105

TEACHER TIPS

Suggested Activities

Teaching Resources

Teaching Strategies

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
1. <u>To measure using liters and half-liters.</u>  Provide liter and half-liter standard measuring containers or bottles or jars of liter and half-liter capacity. Provide a supply of water and a pail.  HERE IS A CONTAINER WHICH MEASURES ONE LITER (ONE-HALF LITER) TO HERE. MEASURE ONE LITER (TWO LITERS, 3-1/2 LITERS, etc.) OF WATER INTO THE PAIL.  SUPPOSE THAT YOUR FATHER HAD FIVE LITERS OF GASOLINE PUT INTO HIS CAR. SHOW HOW MUCH GASOLINE THAT WOULD BE. POUR IT INTO THE PAIL.			
2. <u>To measure using cubic centimeters and/or milliliters.</u>  Provide a graduated cylinder or other container used for measuring volumes in the metric system. Also provide water and other liquids which are measured in centimeters and/or milliliters in your area.  HERE IS A CONTAINER WHICH MEASURES CUBIC CENTIMETERS (MILLILITERS). MEASURE 10 CENTIMETERS (25 CENTIMETERS, 40 MILLILITERS, 75 MILLILITERS, etc.) OF WATER.			
3. <u>To convert commonly used volume measurements from the metric system to the U.S. Customary and vice versa.</u>  PVT. SMITH PUT 38 LITERS OF GASOLINE INTO HIS CAR. HOW MANY GALLONS OF GASOLINE DID HE PUT IN? BOB DRANK HALF A LITER OF MILK. HOW MANY QUARTS DID HE DRINK?  WRITE THE ANSWERS TO THESE PROBLEMS:  $\begin{array}{rcl} 1 \text{ qt} & = & \underline{\hspace{1cm}} \text{ l} \\ 4.5 \text{ gal} & = & \underline{\hspace{1cm}} \text{ l} \end{array} \qquad \begin{array}{rcl} 5 \text{ l} & = & \underline{\hspace{1cm}} \text{ qt} \\ 3.2 \text{ l} & = & \underline{\hspace{1cm}} \text{ qt} \end{array}$			
4. <u>To measure using kilograms.</u>  Provide a small scale which is calibrated in kilograms. Provide materials which are commonly measured in kilograms in your area. For example, use simulated packages of meat or other grocery items.  HERE IS A SCALE WHICH WEIGHS IN KILOGRAMS. WHAT DOES THIS PACKAGE OF MEAT WEIGH?			

## (Abilities and assessments)

5. To measure using grams.

Provide a small scale which is calibrated in grams. Provide materials which are commonly measured in grams in your area. For example, use food or drug items.

HERE IS A SCALE WHICH WEIGHS IN GRAMS. WHAT DOES THIS PACKAGE OF RICE (BAR OF SOAP, BAG OF CANDY, etc.) WEIGH?

6. To convert commonly used weight measurements from the metric system to the U.S. Customary and vice versa.

JOHN BOUGHT A KILO OF BACON. HOW MANY POUNDS OF BACON DID HE BUY?

HOW MANY POUNDS DO YOU WEIGH? HOW MANY KILOS IS THAT?

THIS PACKAGE OF CAKE MIX WEIGHS 16 OUNCES. HOW MANY GRAMS DOES IT WEIGH?

MRS. PARK CAN EAT 84 GRAMS OF BREAD FOR DINNER ON HER DIET. HOW MANY OUNCES OF BREAD CAN SHE EAT?

WRITE THE ANSWERS TO THE FOLLOWING PROBLEMS:

$$\begin{array}{rcl} 1 \text{ oz} & = & \underline{\hspace{1cm}} \text{ g} & 5 \text{ lb} & = & \underline{\hspace{1cm}} \text{ kg} \\ 2 \text{ kg} & = & \underline{\hspace{1cm}} \text{ lb} & 100 \text{ g} & = & \underline{\hspace{1cm}} \text{ oz} \end{array}$$

MONEY1. To identify a penny.

Spread a handful of coins, including pennies, before the student.

SHOW ME A PENNY. (Point to a penny.) WHAT IS THIS COIN?

2. To recognize and write the c sign.

Provide empty food, drug, or notions containers which have the price indicated using the c sign.

HERE IS A PACKAGE THAT \_\_\_\_\_ (name of food, etc.) CAME IN. THE COST IS SHOWN HERE. WHAT IS THIS SIGN?

## TEACHER TIPS

Suggested Activities	Teaching Resources	Teaching Strategies
	p15; 29	

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>3. <u>To count pennies.</u> Place a handful of pennies before the student. HERE ARE SOME PENNIES. COUNT FIVE (EIGHT, TEN, FIFTEEN, etc.) PENNIES.</p>		p15; 29	
<p>4. <u>To add pennies.</u> Place a handful of pennies before the student. HERE ARE SOME PENNIES. SHOW ME HOW TO ADD TWO PENNIES AND FIVE PENNIES. HOW MANY PENNIES DOES THAT MAKE? HOW MANY CENTS IS THAT? Repeat, using other numbers of pennies.</p>		p15; 29	
<p>5. <u>To recognize a nickel as equivalent to five pennies.</u> Place before the student a nickel and a handful of pennies. HERE ARE SOME COINS. SHOW ME HOW MANY PENNIES ARE EQUAL TO ONE NICKEL.</p>	M 106	p15; 29	
<p>6. <u>To add nickels.</u> Place a handful of nickels before the student. HERE ARE SOME NICKELS. SHOW ME HOW TO ADD THREE NICKELS AND TWO NICKELS. HOW MANY NICKELS DOES THAT MAKE? HOW MANY CENTS IS THAT? (Repeat, using other numbers of nickels.)</p>		p15; 29	
<p>7. <u>To add nickels and pennies.</u> Place a handful of nickels and pennies before the student. HERE ARE SOME NICKELS AND PENNIES. SHOW ME HOW TO ADD TWO NICKELS AND TWO PENNIES. HOW MANY CENTS DOES THAT MAKE? Repeat, using other numbers of nickels and pennies.</p>		p15; 29	

## (Abilities and assessments)

8. To subtract using pennies.  
HERE ARE SOME PENNIES. PUT UP PENNIES HERE. NOW SUBTRACT THREE PENNIES. HOW MANY PENNIES ARE LEFT? HOW MANY CENTS ARE LEFT?  
Repeat, using other numbers of pennies.
9. To subtract using nickels.  
HERE ARE SOME NICKELS. PUT UP NICKELS HERE. NOW SUBTRACT TWO NICKELS. HOW MANY NICKELS ARE LEFT? HOW MANY CENTS ARE LEFT?
10. To subtract using nickels and pennies.  
HERE ARE SOME NICKELS AND PENNIES. PUT TWO NICKELS AND FIVE PENNIES HERE. NOW SUBTRACT ONE NICKEL AND TWO PENNIES. HOW MANY NICKELS AND PENNIES ARE LEFT? HOW MANY CENTS ARE LEFT?
11. To recognize the dime and its equivalent coins.  
Place a handful of dimes, nickels, and pennies before the student.  
HERE ARE SOME DIMS, NICKELS, AND PENNIES. PICK UP ONE DIME. NOW PICK UP THE NUMBER OF PENNIES THAT ARE EQUAL TO THE DIME. NOW PICK UP THE NUMBER OF NICKELS THAT ARE EQUAL TO THE DIME. NOW PICK UP BOTH PENNIES AND NICKELS THAT ARE EQUAL TO THE DIME.
12. To add orally using pennies, nickels, and dimes.  
Place a handful of pennies, nickels, and dimes before the student.  
HERE ARE SOME DIMS, NICKELS, AND PENNIES. PICK UP ONE DIME, TWO NICKELS, AND THREE PENNIES. HOW MANY CENTS DO YOU NOW HAVE?  
Repeat, using other numbers of coins.

TEACHER		
Suggested Activities	Teaching Resources	Teaching Strategies
	p15; 29	
	p15; 29	
	p15; 29	
	p15; 29	

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>13. <u>To subtract orally using pennies, nickels, and dimes.</u></p> <p>HERE ARE SOME DIMES, NICKELS, AND PENNIES. PICK UP THREE PENNIES. SUBTRACT THE THREE PENNIES FROM THE DIME. HOW MANY CENTS ARE LEFT?</p> <p>14. <u>To make change using pennies, nickels, and dimes.</u></p> <p>Provide empty containers (food, drug, notion, etc.) with prices marked on them. Prices should be no higher than about 50 cents. Give the student a supply of dimes, nickels, and pennies and keep a supply for yourself. Explain to him that he is the check-out man in the PX or commissary and that you are a customer. You are going to "buy" something, pay him, and he might have to give you change. "Purchase" one item at a time, giving him exact payment or payment so that he must make change. For example:</p> <p>I WOULD LIKE TO BUY THIS CAN OF BEANS. IT COSTS 18 CENTS. HERE ARE TWO DIMES. GIVE ME THE CORRECT CHANGE.</p> <p>Make several "purchases" in this manner, arranging payment so that he must make change in different combinations.</p> <p>15. <u>To match the quarter and its equivalent coins, e.g., two dimes and five pennies, etc.</u></p> <p>Place coins before the student such that he has at least 2 quarters, 5 dimes, 10 nickels, and 50 pennies.</p> <p>HERE ARE SOME COINS. PICK UP ONE QUARTER. NOW PICK UP THE NUMBER OF PENNIES (NICKELS) THAT ARE EQUAL TO THE QUARTER. NOW PICK UP DIMES (NICKELS) AND NICKELS (PENNIES) SO THAT THEY ARE EQUAL TO THE QUARTER. FIND A DIFFERENT SET OF COINS THAT EQUALS ONE QUARTER.</p> <p>16. <u>To match the half dollar and its equivalent coins, e.g., five dimes, etc.</u></p> <p>Place coins before the student such that he has at least 2 half-dollars, 4 quarters, 10 dimes, 20 nickels, and 100 pennies.</p> <p>HERE ARE SOME COINS. PICK UP ONE HALF-DOLLAR. NOW PICK UP THE NUMBER OF QUARTERS (DIMES, NICKELS, PENNIES) THAT ARE EQUAL TO THE HALF-DOLLAR. NOW PICK UP TWO KINDS OF COINS SO THAT THEY ARE EQUAL TO THE HALF-DOLLAR. FIND A DIFFERENT SET OF COINS THAT EQUALS ONE HALF-DOLLAR.</p>		p15; 29 p13; 2a,3b	



(Abilities and assessments)

17. To use the decimal notation when recording addition and subtraction of pennies, nickels, and dimes.

HERE ARE SOME PENNIES, NICKELS, AND DIMES. MOVE THE COINS TO SHOW HOW TO ADD A SET OF TWO DIMES AND THREE PENNIES. WRITE THE SAME ADDITION OF SETS, USING DECIMALS.

Repeat, with other combinations of coins.

Use the same collection of coins.

SHOW HOW TO SUBTRACT A SET OF TWO NICKELS FROM TWO DIMES. WRITE THE SAME SUBTRACTION OF SETS, USING DECIMALS.

18. To match the dollar and its equivalent coins, e.g., 20 nickels, 100 pennies, etc.

Place bills and coins before the student such that he has at least one 1-dollar bill, 4 half-dollars, 8 quarters, 20 dimes, 40 nickels, and 200 pennies.

HERE IS SOME MONEY. PICK UP THE 1-DOLLAR BILL. NOW PICK UP THE NUMBER OF HALF-DOLLARS (QUARTERS, DIMES, NICKELS, PENNIES) THAT ARE EQUAL TO THE DOLLAR. NOW PICK UP A SET OF TWO KINDS OF COINS SO THAT THE SET EQUALS ONE DOLLAR. FIND A DIFFERENT SET OF COINS THAT EQUALS ONE DOLLAR.

19. To recognize and write the \$ sign.

Provide price tags (from garments, supplies, etc.) and advertisements which show the \$ sign in the prices.

WHAT IS THIS SIGN?

WRITE THESE AMOUNTS OF MONEY: \$1.00, \$5.00, etc.

20. To add and subtract dollars, orally.

Provide play money in 1-dollar bills.

HERE ARE SOME PLAY-MONEY DOLLARS. ADD A SET OF \$2.00 (\$3.00, \$5.00, etc.) AND A SET OF \$3.00 (\$1.00, \$4.00, etc.). HOW MUCH MONEY DOES THAT MAKE?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 36	
	p13; 2a,b 3a-c	
	p13; 3d	

(Abilities and assessments)

HERE ARE SOME PLAY-MONEY DOLLARS. SHOW ME A SET OF \$6.00 (\$5.00, \$3.00, etc.). SUBTRACT A SET OF \$2.00 (\$4.00, \$1.00, etc.). HOW MUCH MONEY IS LEFT?

21. To add and subtract using decimal notation.

WRITE AN ADDITION PROBLEM TO SHOW \$5.00 (\$3.00, \$.50, \$.25, etc.) PLUS \$2.00 (\$1.00, \$.10, \$.05, etc.).

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} \$6.00 \\ 1.00 \\ \hline \end{array} \quad \begin{array}{r} \$3.00 \\ 8.00 \\ \hline \end{array} \quad \begin{array}{r} \$5.00 \\ .25 \\ \hline \end{array} \quad \begin{array}{r} \$2.25 \\ .40 \\ \hline \end{array} \quad \begin{array}{r} \$1.10 \\ .02 \\ \hline \end{array}$$

WRITE A PROBLEM TO SHOW \$1.00 (\$3.00, \$.10, \$.25, etc.) SUBTRACTED FROM \$7.00 (\$4.00, \$.50, \$.30, etc.).

WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:

$$\begin{array}{r} \$5.00 \\ - 2.00 \\ \hline \end{array} \quad \begin{array}{r} \$10.00 \\ - 5.00 \\ \hline \end{array} \quad \begin{array}{r} \$5.50 \\ - .25 \\ \hline \end{array} \quad \begin{array}{r} \$7.75 \\ - .15 \\ \hline \end{array} \quad \begin{array}{r} \$2.25 \\ - .03 \\ \hline \end{array}$$

22. To match 5-, 10-, and 20-dollar bills and their equivalent bills (e.g., two 10-dollar bills equal one 20-dollar bill, etc.).

Provide play money in denominations of 1-, 5-, 10-, and 20-dollar bills.

HERE IS SOME PLAY MONEY IN BILLS. SHOW ME ONE 20-DOLLAR BILL. SHOW ME HOW MANY 10-DOLLAR BILLS EQUAL THE 20-DOLLAR BILL.

Repeat with other equivalents.

23. To add and subtract orally using 5-, 10-, and 20-dollar bills.

Provide play money in denominations of 5-, 10-, and 20-dollar bills.

HERE IS SOME PLAY MONEY IN BILLS. SHOW ME ONE 10-DOLLAR BILL. SHOW ME TWO 5-DOLLAR BILLS. HOW MUCH DO WE HAVE IF WE ADD THE TEN DOLLARS AND THE TWO FIVES?

Repeat with other combinations of bills.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 3d	

## (Abilities and assessments)

24. To add and subtract orally, using American coins and bills.

If possible, provide real American money such that all kinds of coins and bills are in ample supply. Alternatively, provide real coins and play money in bills, or play money in coins and bills.

HERE ARE SOME COINS AND BILLS. HERE IS A 5-DOLLAR BILL. HERE ARE TWO QUARTERS AND THREE DIMES. HOW MUCH MONEY IS THERE ALL TOGETHER?

Repeat with other combinations of coins and bills.

HERE ARE SOME COINS AND BILLS. HERE IS A 1-DOLLAR BILL. SUBTRACT ONE QUARTER. HOW MUCH MONEY IS LEFT?

Repeat with other combinations of coins and bills.

25. To make change using American coins and bills.

Provide pictures of articles the students might want to purchase or be called upon to purchase, and which are likely to be available in your area. For example, use pictures of clothing items, foods, toys, records, gifts. Mark each picture with a realistic cost for the item (up to about \$10.00). Give the student a supply of play and/or real coins and bills, and keep a supply for yourself. Explain to him that he is the check-out man in a store and that you are a customer. You are going to "buy" something, pay him, and he might have to give you change. "Purchase" one item at a time, giving him exact payment or payment so that he must make change. For example:

I WOULD LIKE TO BUY THIS PAIR OF JEANS. THEY COST \$7.49. HERE IS A 10-DOLLAR BILL. GIVE ME THE CORRECT CHANGE.

Make several "purchases" in this manner, arranging payment so that he must make change in different combinations.

26. To recognize money amounts in written numeral form.

Provide advertisements which have prices for items in written numeral form.

HOW MUCH DOES THIS \_\_\_\_\_ (name of item) COST?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 36	
	p15; 28,29 p16; 36	

## (Abilities and assessments)

## 27. To write the amount of money in numeral form.

Provide pictures of items which the students might want to purchase or be called upon to purchase, and which are likely to be available in your area. Hold up one picture at a time.

THIS SWEATER (HAT, RECORD, CARTON OF MILK, etc.) COSTS \_\_\_\_\_ (give amount of money). ON YOUR PAPER WRITE THAT AMOUNT OF MONEY.

## 28. To add and subtract American coins and bills using decimal notation.

WRITE AN ADDITION PROBLEM TO SHOW \$2.25 (\$6.83, \$4.51, etc.) PLUS \$1.32 (\$7.29, \$3.98, etc.).

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} \$1.21 \\ 3.48 \\ \hline \end{array} \quad \begin{array}{r} \$2.37 \\ 5.59 \\ \hline \end{array} \quad \begin{array}{r} \$4.98 \\ 2.89 \\ \hline \end{array} \quad \begin{array}{r} \$15.25 \\ 3.19 \\ \hline \end{array}$$

WRITE A PROBLEM TO SHOW \$1.45 (\$3.21, \$5.16, etc.) SUBTRACTED FROM \$6.98 (\$8.75, \$10.53, etc.).

WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:

$$\begin{array}{r} \$5.84 \\ - 2.21 \\ \hline \end{array} \quad \begin{array}{r} \$1.58 \\ - .89 \\ \hline \end{array} \quad \begin{array}{r} \$7.75 \\ - 2.25 \\ \hline \end{array} \quad \begin{array}{r} \$12.97 \\ - 3.18 \\ \hline \end{array}$$

## 29. To use checks as a form of money.

Provide dittoed facsimiles of checks, cut to appropriate size. Provide pictures of articles the students might wish to purchase or be called upon to purchase and which are likely to be available in your area. Ask each picture with a realistic cost for the item. Explain to the student that you are a clerk for Jones Company Department Store and that he is to make purchases, using checks. For example:

YOU WANT TO BUY THIS SHIRT? IT COSTS \$4.98. WRITE A CHECK FOR THE EXACT AMOUNT OF MONEY. (WRITE A CHECK FOR A LARGER AMOUNT OF MONEY SO THAT YOU WILL GET SOME CHANGE.)

Have him make several separate purchases in this manner.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p13: 1,3d

(Abilities and assessments)

30. To use traveler's checks and money orders as forms of money.

Prepare dittoed facsimiles of traveler's checks, cut to appropriate size. Have the student "purchase" a book of traveler's checks. Then have him use the traveler's checks to make purchases as checks were used in ability #29 above.

Prepare dittoed facsimiles of money orders, cut to appropriate size. Provide pages from a catalog showing items the student might wish to purchase. Have hi "select" an item, "buy" a money order, and "send for" the item.

31. To recognize common coins of the host nation.

Provide a handful of coins of the host nation.

SHOW ME A \_\_\_\_\_ (name of coin of host nation).

32. To convert American money into host nation money.

Place before the student in one pile a handful of coins and bills from the host nation. In another pile place a handful of American coins and bills.

HERE IS SOME \_\_\_\_\_ (host nation) MONEY. HERE IS SOME AMERICAN MONEY. PICK UP A \_\_\_\_\_ (host nation coin or bill). NOW PICK UP THE SAME AMOUNT IN AMERICAN MONEY.

33. To give correct amount of money for purchases.

Provide pictures and money as described in ability #25 above. Explain to the student that you are now the check-out clerk and that he is to make purchases, giving you the exact money needed. For example:

YOU WISH TO BUY THIS BAG OF CANDY? IT COSTS 79 CENTS. GIVE ME THE EXACT AMOUNT OF MONEY.

Have him make several separate purchases in this manner.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p15; 28,29	

(Abilities and assessments)

34. To specify ways of using money more wisely through budgeting.

WHAT ARE SOME OF THE WAYS YOU CAN USE MONEY WISELY IF YOU BUDGET YOUR MONEY?

Typical expected (oral) responses: I will have enough money to pay bills. I can put money into a savings account. I will always know how much money I have.

35. To recognize banking as an aid to efficient budgeting.

WHY SHOULD YOU PUT MONEY IN A BANK?

Typical expected (oral) responses: If I have a checking account, I can write checks for all my bills. That gives me a good record of what I spent. If I put money into a savings account, I can save to buy \_\_\_\_\_ (something big) later on. Or I will have money for emergencies.

36. To practice budgeting money.

Set up a hypothetical but realistic budgeting situation for the student. Have him do the calculations and make entries.

This could be done as follows: State a realistic monthly income for him, letting it depend on his abilities and age. Considering his needs and interests now (or to be when out of school), specify necessary expenditures. For example, state amounts for rent, utilities, car payments, food, savings. The amounts could be given to him in percentages or in dollars, depending on his abilities and the budgeting methods he has been taught. List, or let him list, other things he might wish to spend money for (e.g., travel, movies, gifts). Have him make out a budget for at least two months, showing when he gets paid, and when he pays each bill or makes other expenditures.

Alternatively, older students who receive a sizable allowance could be asked to set up a two-month budget for wise use of the allowance. They could then keep track of actual expenditures, checking against their budgets.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p13; 1,3d	
	p13; 1,3d	
		p61; 3

COMPARATIVE WORDS EXPRESSING QUANTITY

Ability and Assessment:

1. To identify objects as big or little (or, as large or small): vocabulary for older children).

Place before the student a set of five or six objects, some of which are comparatively "big." For example, the set could consist of a desk, a chair, a wastebasket, a book, and a pencil.

WE HAVE SOME BIG OBJECTS (THINGS) AND LITTLE OBJECTS (THINGS). (Point to one object at a time.) IS THIS BIG OR LITTLE?

Content-Development Activities:

- (1) HERE IS A BIG BOOK. HERE IS A LITTLE BOOK. BIG AND LITTLE. TAKE THE LITTLE BOOK FROM ME.

Task Analysis

Process

Cognition

In: visual nonverbal perceptual  
Out: motor nonverbal awareness

- (2) Place two of the following objects in a bag. Put in one big object and one little object, e.g., a book and a pencil, an apple and a gum drop, etc.

I HAVE A LITTLE THING AND A BIG THING IN THIS BAG. TAKE THEM OUT AND TELL ME WHICH IS BIG AND WHICH IS LITTLE.

- (3) Provide a large car, a small car, a large doll, a small doll, etc., using available objects. Place all in a group on a desk.

PUT ALL OF THE BIG THINGS ON THIS DESK (point to a nearby desk) AND PUT ALL OF THE LITTLE THINGS ON THAT DESK (point to another nearby desk).

- (4) Point to the desk with the small dolls.

HOW ARE THEY ALL ALIKE?

- (5) HERE IS A CRAYON AND A PIECE OF PAPER. DRAW A BIG BALL. NOW DRAW A LITTLE BALL.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 11	p69; 5

Comparative words expressing quantity)

Reinforcement Activities:

- (1) Repeat content-development activities for review purposes, using a larger variety of objects.
- (2) WE ARE GOING TO PLAY A GAME. THIS IS GROUP ONE AND THIS IS GROUP TWO. GROUP ONE, LINE UP HERE AND GROUP TWO, LINE UP HERE. HERE ARE SOME CIRCLES. SOME ARE BIG AND SOME ARE LITTLE. I AM GOING TO PUT THEM DOWN BETWEEN YOU. WHEN I SAY "GO," GROUP ONE WILL TRY TO PICK UP ALL THE BIG CIRCLES AND GROUP TWO WILL TRY TO PICK UP ALL THE LITTLE CIRCLES. YOU MUST STOP WHEN I SAY, "FREEZE." READY, GO . . . . FREEZE.
- (3) I SEE SOMETHING BIG. IT IS . . . (describe it). WHAT IS IT? I SEE SOMETHING LITTLE. IT IS . . . .
- (4) Give the child a cutout which has big and little squares on it.  
HERE IS A CRAYON. COLOR ALL THE LITTLE SQUARES.
- (5) Use flannel-board cut-outs. Have the child show you the correct cut-out in response to the questions: WHICH IS BIG? WHICH IS LITTLE?

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
p15; 31	p29; 5	



(Comparative words expressing quantity)Ability and Assessment:

2. To tell if an object is shorter or longer than another object.

Give the student two similar long thin objects of obviously differing lengths. For example, use two sticks, two pencils.

HERE ARE TWO STICKS (PENCILS, etc.). WHICH STICK IS LONGER? WHICH STICK IS SHORTER?

Content-Development Activities:

- (1) HERE ARE TWO PENCILS. THEY ARE ALMOST ALIKE. THERE IS ONE REASON THAT THEY DO NOT LOOK ALIKE. THIS ONE IS LONGER AND THIS ONE IS SHORTER. I WILL PICK UP THE LONGER ONE. I WILL PICK UP THE SHORTER ONE.
- (2) Repeat #1 using objects other than pencils; e.g., sticks of different shapes, lengths of string, yarn, or rope, rulers, scissors, strips of paper, stalks of celery.
- (3) Make a chart of shorter and longer pieces of bright colored yarn. Block the chart into six sections. Paste two pieces of yarn in each section, one longer and one shorter. Point to each section as you say:  
LOOK AT THESE TWO PIECES OF YARN. POINT TO THE ONE THAT IS LONGER. POINT TO THE ONE THAT IS SHORTER.

Task Analysis

<u>Process</u>	<u>Cognition</u>
In: visual nonverbal	conceptual
Out: motor nonverbal	recognition

- (4) WE ARE GOING TO MAKE A CHAIN. HERE IS A PIECE OF PAPER. CUT ONE LONG STRIP. NOW CUT ONE STRIP THAT IS SHORTER. WE NEED FIVE MORE LONG STRIPS AND FIVE MORE SHORT ONES. I'LL HELP YOU COUNT. CUT A LONGER ONE . . . NOW A SHORTER ONE. NOW WE PASTE THE ENDS OF A LONG STRIP TOGETHER. WE PUT A SHORTER STRIP THROUGH IT. NOW WE PASTE THE ENDS OF A SHORTER STRIP TOGETHER. I'LL HELP YOU FINISH THE CHAIN. PASTE A LONGER STRIP. NOW PASTE A SHORTER STRIP . . .

Diagram:



TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 10d p14; 12	p69; 5

(Comparative words expressing quantity)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p>(5) Find a version of <u>Pinocchio</u>. Cut out a silhouette of Pinocchio's head. Cut out and insert a nose which can be pulled out or pushed in. Read the portion of the story describing the growth of Pinocchio's nose, demonstrating growth and reduction. Have children come to you and make Pinocchio's nose longer or shorter and give you the appropriate answer.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) I HAVE TWO BOXES. HERE IS A CRAYON TAPED TO THE TOP OF EACH BOX. WHICH CRAYON IS SHORTER? WHICH CRAYON IS LONGER? HERE IS A BAG. I HAVE MANY THINGS IN IT (use long thin things and short things). WHAT MIGHT I HAVE IN THE BAG? I WILL PULL TWO THINGS OUT OF THE BAG. (Remove a pair of objects from the bag.) PUT THE SHORTER ONE IN THE BOX THAT HAS THE SHORTER CRAYON ON THE LID. PUT THE LONGER ONE IN THE BOX THAT HAS THE LONGER CRAYON ON THE LID.</p> <p>(2) LET'S ALL SIT IN A CIRCLE. WE ARE GOING TO PLAY "WHO IS SHORTER?" YOU WILL CLOSE YOUR EYES. I WILL TAP TWO CHILDREN TO COME TO THE MIDDLE OF THE CIRCLE. YOU WILL OPEN YOUR EYES WHEN I TELL YOU. I WILL ASK "WHO IS SHORTER?" YOU WILL TRY TO TELL ME. READY, CLOSE YOUR EYES . . .</p> <p>(3) Use an overhead projector focused on the chalkboard and a transparency with objects which are boxed off into pairs, one of which is longer and one of which is shorter.</p> <p>CIRCLE THE OBJECT THAT IS LONGER IN EACH BOX.</p>		p30

BASIC SET CONCEPTS

Ability and Assessment:

1. To identify observable sets of things.

Place several sets (of fewer than 10 members each) of common classroom items within easy view, but not necessarily directly in front of the student. For example, place four chalkboard erasers on the chalkboard edge, six balls on a table, three chairs grouped together.

THERE ARE SOME SETS OF THINGS IN THE ROOM. FIND A SET OF CHAIRS (ERASERS, BALLS, etc.).

Content-Development Activities:

- (1) HERE IS A WINDOW. CAN YOU TOUCH ALL THE WINDOWS IN THE ROOM? YOU HAVE TOUCHED ALL OF THE MEMBERS OF A SET OF WINDOWS.
- (2) LET'S MAKE A SET OF CHAIRS. HERE IS ONE CHAIR. BRING TWO MORE CHAIRS OVER HERE. DO YOU SEE MORE CHAIRS THAT COULD BE IN OUR SET?
- (3) Place a box of scissors, a box of crayons, and a box of erasers on a table.
- HERE IS A CRAYON, A PAIR OF SCISSORS, AND AN ERASER. PUT EACH ONE IN THE RIGHT SET.
- (4) Spread rulers and pencils on a table. Ask all the children to gather around the table.
- WE HAVE TWO DIFFERENT KINDS OF THINGS HERE. NAME THE THINGS WE HAVE. ARE THERE TWO KINDS OF THINGS? HOW MANY SETS OF THINGS DO WE HAVE? NAME THE TWO SETS OF THINGS.
- (5) Give a name.
- NAME (POINT TO) ALL OF THE THINGS YOU CAN SEE IN THE ROOM THAT ARE RED; . . . BLUE; . . . BOOKS; . . . THINGS TO WRITE WITH. After all the members of a set are named: WE HAVE NAMED ALL THE MEMBERS OF THE SET OF RED THINGS; . . . BLUE THINGS; . . . BOOKS; . . . THINGS TO WRITE WITH . . . ; etc.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 10d p15; 30a	c37; 2

(Basic set concepts)

Reinforcement Activities:

- (1) Place books, pencils, crayons, and chalk in a box.

TAKE OUT ANYTHING YOU CAN WRITE WITH. WE NOW HAVE A SET OF THINGS FOR WRITING. WHAT KIND OF SET IS LEFT IN THE BOX?

- (2) Divide the class into "set-finder" teams, one team for each set of things to be found (pencils, windows, books, crayons, etc.).

THE MEMBERS OF THE PENCIL (WINDOW, BOOKS) SET-FINDING TEAM WILL FIND ALL THE PENCILS (WINDOWS, BOOKS) IN THE ROOM.

- (3) Have an outline picture of the classroom on a ditto worksheet. Call the children's attention to a real object in the classroom.

LOOK AT YOUR PICTURE. MARK ALL THE THINGS THAT ARE IN THE SAME SET AS THE THING I'M POINTING TO.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Basic set concepts)Ability and Assessment:3. To label a collection placed before him "a set."

Have available several sets, each set consisting of from two to nine like objects. For example, have seven pencils, three blocks, two chairs, eight books. Point to one set at a time.

WHAT CAN WE CALL THIS GROUP (BUNCH, PILE, etc.) OF PENCILS (BLOCKS, etc.)?

Content-Development Activities:

- (1) HERE ARE SOME BLOCKS. PUT ALL OF THE RED BLOCKS TOGETHER. WE NOW HAVE A SET OF RED BLOCKS. THE RED BLOCKS ARE A SET BECAUSE THEY ARE ALL ALIKE IN SOME WAY. THEY ARE ALL RED. ANYTIME WE PUT THINGS TOGETHER BECAUSE THEY ARE ALIKE IN SOME WAY, WE SAY WE HAVE A SET.
- (2) Present three or four sets of pictures of objects familiar to the pupil (e.g., a set of pictures of food, of furniture, etc.). Point to each set, one at a time and say:  
WHAT IS THIS? (desired response is: This is a set of pictures of food, furniture, cars, airplanes, etc.).

Task AnalysisProcessCognition

In: visual nonverbal perceptual  
Out: vocal verbal awareness

- (3) ON THE TABLE ARE MANY BLOCKS. WHAT CAN WE CALL A GROUP OF THINGS THAT ARE ALIKE IN SOME WAY?
- (4) CLOSE YOUR EYES. HERE ARE THREE THINGS. DO THEY ALL FEEL ALIKE? WHAT DO WE CALL THINGS THAT WE PUT TOGETHER BECAUSE THEY ARE ALIKE IN SOME WAY?

Reinforcement Activities:

- (1) LET'S SIT IN A CIRCLE. LISTEN CAREFULLY AND TRY TO DO WHAT I TELL YOU TO DO. THE SET OF BOYS STAND. THE SET OF GIRLS FOLD YOUR ARMS. (Continue giving different directions.)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 10a	
p14; 15,17 p15; 32	
p14; 15,17 p15; 32	

CARDINAL PROPERTIES OF SETS

Ability and Assessment:

3. To recognize sets having specified cardinal properties (1-9).

Use sets of one to nine identical objects or pictures of sets.

POINT TO THE SET OF TWO (THREE, etc.) CARS (DOGS, etc.).

Content-Development Activities:

(1) Place sets of one, three, and five familiar objects before the child. Point to the set of one object.  
HERE IS A SET OF ONE (CRAYON).

Point to the set of three objects: HERE IS A SET OF THREE (CRAYONS).

Point to the set of five objects: HERE IS A SET OF FIVE (CRAYONS).

NOW YOU POINT TO THE SETS WITH ME AS WE ALL SAY HOW MANY MEMBERS THERE ARE IN THE SET.

(2) Display sets of three, five, and seven blocks on a table at the front of the room. Specify a numeral. Select a volunteer to come to the front of the room and point to the set or sets having the cardinal property (numeral) specified. Ask the class if the volunteer has made a correct response. Those pupils who think he is correct will come forward and stand near the set the volunteer has pointed out. Those who disagree will come forward and stand by whichever set(s) they believe to be the correct response. Then each group will count the members of their chosen set to determine the set having the cardinal property of the numeral specified by the teacher.

(3) Have sets of four, seven, and eight pencils on desks.

TOUCH THE DESK THAT HAS A SET OF FOUR PENCILS ON IT . . . TOUCH THE DESK THAT HAS A SET OF EIGHT PENCILS ON IT . . . NOW, WHICH DESK HAS A SET OF SEVEN PENCILS ON IT?

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: motor nonverbal	recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 10d p15; 30a-c	
p14; 15,17 19.20	
	p37; 2,3
p14; 15,17, 19.20	

(Cardinal properties of sets)

(4) Give the pupil a variety of playing cards. Do not include face cards or tens.

SHOW ME A CARD WITH \_\_\_\_\_ (specify a numeral, 1-9) ON IT.

Reinforcement Activities:

(1) Place varying numbers of dots on several empty containers and place them so that the students can see the dots.

HERE ARE SOME CONTAINERS THAT HAVE DOTS ON THE FRONT OF THEM. PUT THE SAME NUMBER OF BLOCKS (BEADS, etc.) IN THE BOX AS THERE ARE DOTS ON THE FRONT OF THE BOX. E.g., YOU SEE THREE DOTS ON THE FRONT OF THIS BOX. HOW MANY BLOCKS WILL YOU PLACE IN IT? . . . YES, THREE.

(2) Provide a flannel-board and several shapes of animals.

PUT A SET OF FOUR DUCKS ON THE FLANNEL-BOARD . . . A SET OF THREE FLAGS . . . A SET OF FIVE TREES.

(3) Make sets of three, four, and five objects, using objects that are familiar to the students. Make some sets of objects from the classroom and some sets of objects from outside the classroom. Work with individuals or small groups of students. Have the student point to a displayed set having the cardinal property you specify.

POINT TO THE SET OF (the number) (name of object).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 15,17, 19,20	p29; i-5
p14; 15,17, 19,20	

ACCUSSION CONCEPTSAbility and Assessment:

2. To associate the spoken words "add" or "plus" or "join" with the addition operation.

"HERE IS A SET OF THREE STICKS. HERE IS A SET OF TWO STICKS. I WILL NOW ADD (JOIN) THE TWO STICKS TO THE THREE STICKS. WHAT WORD TELLS THAT I ADD (JOIN) THE SETS? (response: join, add)

WATCH AND LISTEN WHILE I JOIN (ADD) THESE SETS. THREE "BEEP" TWO. WHAT WORD GOES WHERE I SAID "BEEP"? (response: plus)

Content-Development Activities:

- (1) Collect various counting materials.

HERE ARE TWO ERASERS. I WILL JOIN THREE MORE ERASERS TO THIS SET. WHEN I JOIN THINGS, I ADD THEM TOGETHER. WATCH AGAIN. I HAVE TWO ERASERS AND I ADD THREE TO THEM. NOW IT'S YOUR TURN. TAKE FOUR ERASERS. ADD ONE ERASER TO THE SET. WHAT DID YOU DO? "WHAT IS ANOTHER WORD FOR JOIN?" (Add)

- (2) WATCH WHAT I DO AND SEE IF YOU CAN TELL THE STORY. (Take two crayons and add two more to the set.) TELL ME THE ADDING STORY.

- (3) I WILL TELL YOU AN ADDING STORY. (Make up a story using three items and two items--e.g., THREE DUCKS CAME TO THE POND. TWO MORE DUCKS CAME TO THE POND. HOW MANY DUCKS CAME TO THE POND?) USE THESE BLOCKS TO SHOW ME AN ADDING STORY. (E.g., Three blocks plus four blocks makes (equals) seven blocks.)

- (4) Make a transparency showing addition situations.

LOOK AT THE STARS ON THIS TRANSPARENCY. HOW MANY ARE IN THE TOP SET? HOW MANY ARE IN THE BOTTOM SET? WHAT WILL WE DO IF WE PLACE THESE SETS INTO ONE SET? (Elicit: add, join.) (Develop the concepts of top and bottom.)

- (5) Collect various objects for counting. Make a set of numerals and a + sign on an overhead transparency. TAKE ONE BLOCK. ADD TWO BLOCKS TO IT. LOOK AT THE SCREEN. WE HAVE A SPECIAL WAY TO SAY WHAT WE JUST DID. WATCH AND LISTEN. ONE PLUS TWO EQUALS THREE. NOW YOU SAY THAT. JOHNNY, TELL AN ADDING STORY USING SOME OBJECTS . . . NOW LET'S REPEAT JOHNNY'S STORY TOGETHER. (Show the problem on the screen with your overhead projector.) LOOK AT THE SCREEN AND SHOW THE STORY WITH YOUR BLOCKS. "NOW LET'S SAY IT ALL TOGETHER. (Repeat, e.g., THREE PLUS ONE EQUALS FOUR.)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 15,17, 19,20, 21	
p14; 15,17, 19,20, 21	p30; 1-3



## (Addition concepts)

Reinforcement Activities:

- (1) Provide the pupil with several blocks. Give him a piece of paper folded into four sections with each section numbered. Give him an audio tape which tells him what to construct in each section. An example would be:

TOUCH NUMBER ONE ON YOUR PAPER. IN THE BOX THAT HAS THE ONE, PLACE YOUR BLOCKS SO THAT THEY TELL THIS ADDING STORY: ONE PLUS TWO EQUALS THREE.

- (2) Allow the pupil to construct four addition stories and make an audio tape of the stories he has constructed. Play it back to the class as you write each problem and answer on the chalkboard.

- (3) Have one pupil tell an addition story. Another pupil draws a picture on the board that shows the story. If the illustrator has accurately depicted the story, he gets a chance to tell a story and choose the next illustrator.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14, 14	p58; 7

(Addition concepts)

Ability and Assessment:

10. To write the correct answer to printed simple addition problems.

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

2	6	7	4	5 + 3 =	8 + 1 =	4 + 5 =	2 + 4 =
3	1	2	4				

Content-Development Activities:

(1) Show the child the following picture:

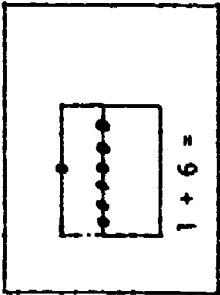


HOW MANY CHICKS ARE EATING? HOW MANY CHICKS ARE COMING TO JOIN THOSE CHICKS? HOW MANY CHICKS DO WE HAVE ALL TOGETHER? TWO PLUS SIX EQUALS EIGHT. WRITE THAT UNDER THE PICTURE.

(2) Give the child a dittoed worksheet depicting an addition exercise and an abacus illustrating the problem. The child writes the answer.

POINT TO THE BEAD ON THE TOP BAR. POINT TO THE BEADS ON THE NEXT BAR. HOW MANY BEADS ARE THERE ALL TOGETHER? WRITE YOUR ANSWER ON YOUR WORKSHEET.

Example:



1 + 6 =

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 13	
p15; 30a-c	p58; 2
p14; 20	

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: motor verbal	recall

(Addition concepts)

- (3) Give the child some written problems, e.g.,  $3 + 6 =$        $4 + 5 =$        $1 + 5 =$
- 6                      5                      5

Note: Continue to develop the set of basic addition facts from one through nine following the above pattern; that is, a concrete presentation, a semi-abstract presentation, then the abstract symbols.

- (4) Have the students fold their papers into eight sections. Have them draw pictures which tell some of the addition facts from one to nine. Have them write the addition fact for each picture.

Reinforcement Activities:

- (1) Play "Addition Bingo." Use the numerals one to nine. Make several cards with numerals in different places. Two suggestions are:

8	9	8
7	2	3
6	7	6

9	7	7
6	4	3
6	8	9

I WILL TELL YOU AN ADDITION EXERCISE. IF YOU HAVE THE ANSWER ON YOUR CARD, YOU MAY COVER IT WITH ONE CHIP. YOU MAY ONLY COVER ONE NUMBER EACH TURN. THE FIRST ONE TO COVER A WHOLE ROW GOING DOWN OR ACROSS WINS.

If students have never played before, have a demonstration game. Begin the game when everyone understands.

- (2) Give the students ditto sheets for mastering the addition facts from one to nine. Give them tests when you/they feel they have mastered the facts.
- (3) Make an audio drill tape. Tape a problem and pause ten seconds. Continue until ten problems have been taped. Give each child a ditto sheet on which the problems are printed in the order that they are spoken on the tape.

TODAY WE ARE GOING TO PLAY "BEAT THE TAPE." I HAVE TAPED SOME PROBLEMS. LISTEN . . . (play the first few problems for them). HOW MANY THINK THAT THEY COULD WRITE THE ANSWER TO THE PROBLEM BEFORE THE TAPE GIVES THE NEXT PROBLEM? LET'S SEE IF WE CAN ALL DO IT. HERE IS A PAPER FOR YOUR ANSWERS. IT FOLLOWS THE PROBLEMS ON THE TAPE. AS SOON AS EVERYONE IS READY, I'LL BEGIN THE TAPE. I HOPE YOU'RE FAST. GOOD LUCK.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 3
	p29; 1
	p58; 7

(Addition concepts)

Ability and Assessment:		TEACHER TIPS	
		Teaching Resources	Teaching Strategies
11. To add sets one through nine with three addends, the sum of which does not exceed nine.		p14; 13	p62; 5
WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:		p15; 30a-c	
<div>Content-Development Activities:</div> <div><div>(1) HERE ARE SOME PENCILS. HERE'S ONE. HERE ARE FOUR MORE. HOW MANY PENCILS DO YOU HAVE NOW? TAKE TWO MORE. HOW MANY PENCILS NOW? ONE PLUS FOUR PLUS TWO EQUALS SEVEN. NOW YOU SAY THAT. PUT THE PENCILS DOWN ON THIS PIECE OF PAPER. PUT ONE PENCIL DOWN. LEAVE A LITTLE SPACE. PUT FOUR PENCILS AND LEAVE A LITTLE SPACE, THEN PUT TWO MORE PENCILS DOWN. (Write the addition exercise under it: <math>1 + 4 + 2 = 7</math>. Then write it the other way: <math>4 + 2 + 1 =</math> <math>3 + 4 + 2 =</math></div><div>(2) Give the child the following diagram: <div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div></div><div>LOOK AT THE CIRCLES. WE HAVE TWO AND THEN WE HAVE THREE AND THEN WE HAVE THREE. LET'S FIND OUT HOW MANY WE HAVE ALL TOGETHER. WHAT DOES TWO PLUS THREE EQUAL? WHAT DOES FIVE PLUS THREE EQUAL? WRITE THAT ADDING EXERCISE UNDER THE CIRCLES. WRITE IT TWO WAYS.</div><div>Examples: <div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><math>2 + 3 + 3 = 8.</math></div></div></div><div><div>Process</div><div>Task Analysis</div><div>Cognition</div></div><div><div>In: visual verbal</div><div>Out: motor verbal</div><div>conceptual recognition</div></div></div></div>			

Content-Development Activities:

(1) HERE ARE SOME PENCILS. HERE'S ONE. HERE ARE FOUR MORE. HOW MANY PENCILS DO YOU HAVE NOW? TAKE TWO MORE. HOW MANY PENCILS NOW? ONE PLUS FOUR PLUS TWO EQUALS SEVEN. NOW YOU SAY THAT. PUT THE PENCILS DOWN ON THIS PIECE OF PAPER. PUT ONE PENCIL DOWN. LEAVE A LITTLE SPACE. PUT FOUR PENCILS AND LEAVE A LITTLE SPACE. THEN PUT TWO MORE PENCILS DOWN. (Write the addition exercise under it: 1 + 4 + 2 = 7. Then write it the other way: 4 + 2 + 1 = 7)

(2) Give the child the following diagram: 

o

o

o

o

o

o

o

o

o

LOOK AT THE CIRCLES. WE HAVE TWO AND THEN WE HAVE THREE AND THEN WE HAVE THREE. LET'S FIND OUT HOW MANY WE HAVE ALL TOGETHER. WHAT DOES TWO PLUS THREE EQUAL? WHAT DOES FIVE PLUS THREE EQUAL? WRITE THAT ADDING EXERCISE UNDER THE CIRCLES. WRITE IT TWO WAYS.

Examples: 

o

o

o

2

3

3

2

3

3

2

3

3

2 + 3 + 3 = 8.

2

3

3

8

Task Analysis

Process

Cognition

In: visual verbal

Out: motor verbal

conceptual recognition

## (Addition concepts)

(3) HERE IS AN ADDING EXERCISE. READ THE PROBLEM TO ME:  $3 + 1 + 4 =$ . FIRST WE ADD THE THREE AND THE ONE. WHAT IS THE ANSWER? NOW WE ADD FOUR AND FOUR. WHAT IS THE ANSWER? YOU WRITE THE EXERCISE TWO WAYS WITH THE ANSWER.

(4) Do several exercises similar to the above, but use a variety of addends and have the students write out the exercises in each case.

(5) FIND THE ANSWERS TO THESE EXERCISES:  $2 + 3 + 1 =$        $4 + 1 + 2 =$        $4 + 1 + 3 =$

$$\begin{array}{r} 2 \\ 3 \\ 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ 1 \\ 2 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ 1 \\ 3 \\ \hline \end{array}$$

Note: Continue to develop other sets of addition facts from six to ten with three addends following the pattern above.

Reinforcement Activities:

(1) Make two sets of numerals one through nine on separate cards. Put them in a box.

I HAVE SOME NUMERAL CARDS IN THIS BOX. COME AND DRAW ONE. I WILL CALL ON THREE STUDENTS TO COME TO THE FRONT OF THE ROOM WITH CARDS. Tell students who can add the cards to raise their hands. If the volunteer's answer is correct, have him write the exercise on the chalkboard.

(2) Have students make a set of numerals on cards. Write problems on large cards. Hold a problem card up and have the students hold up the card with the correct answer.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; a-c	p37; 1-3
p14; 22 p15; 29	p37; 1

SUBTRACTION CONCEPTS

Ability and Assessment:

1. To separate sets nine through one (remainder greater than 0).

Give the student seven similar objects (e.g., pencils, blocks, marbles, hats).

SEPARATE A SET OF TWO PENCILS (BLOCKS, etc.) FROM THIS SET OF SEVEN PENCILS (BLOCKS, etc.). HOW MANY PENCILS (BLOCKS, etc.) ARE IN THE NEW SET?

Content-Development Activities:

(1) HERE ARE SOME BLOCKS. COUNT HOW MANY THERE ARE. NOW COUNT JUST EIGHT BLOCKS. PUT THOSE IN FRONT OF YOU. YOU NOW HAVE A SET OF EIGHT BLOCKS. TAKE TWO FROM YOUR SET OF EIGHT BLOCKS. PUT THEM ASIDE. HOW MANY BLOCKS DO YOU HAVE IN YOUR SET NOW? PUT TWO BLOCKS BACK. WE WILL SEPARATE THEM AGAIN BUT WE WILL SAY SOMETHING WITH THEM. WATCH ME AND LISTEN. I HAVE EIGHT BLOCKS. I SEPARATE TWO BLOCKS. I NOW HAVE A SET OF SIX BLOCKS. NOW, YOU DO IT.

(2) HERE IS A SET OF NINE (e.g., paper plates, paper cups). SEPARATE THREE \_\_\_\_\_. HOW MANY ARE NOW IN THE SET?

Repeat many times with many objects familiar to the students.

Reinforcement Activities:

- (1) Make up math separating stories and call on students to pretend they are the characters in the story.  
For example:

ONCE THERE WERE NINE ELEPHANTS IN A BIG FIELD. THEIR NAMES WERE (call on students to come to the front of the room). TWO OF THEM, MARY AND TOM, LEFT AND WENT INTO THE JUNGLE. HOW MANY ELEPHANTS ARE STILL IN THE FIELD?

- (2) Group students of equal math ability in twos or threes. Provide each group of students with several familiar objects. Have the students take turns constructing series of sets which depict separating situations. Tell the students to tell a separating story as they construct the series of sets.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 13	p67; 1
p15; 30a-c	p68; 3 p69; 4
p14; 15,17,19,20,21,22	
p14; 15,17,19,20,21	

(Subtraction concepts)

Ability and Assessment:

8. To write the correct answer to printed simple subtraction problems:

WRITE THE ANSWERS TO THESE PROBLEMS:

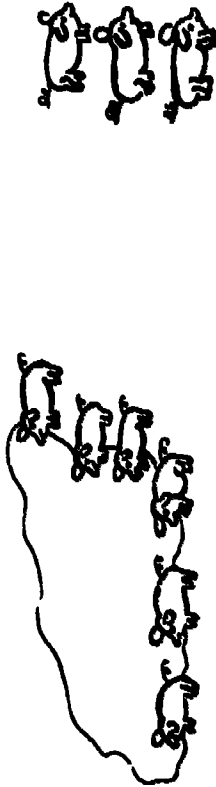
$$\begin{array}{r} 6 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ -1 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ -3 \\ \hline \end{array} =$$

Content-Development Activities:

(1) HERE ARE NINE PIECES OF CHALK. SEPARATE THREE PIECES FROM THE NINE. HOW MANY DO YOU HAVE NOW? NINE MINUS THREE EQUALS SIX. CAN YOU SAY THAT?

Task Analysis	
Process	Cognition
In: visual nonverbal	perceptual
Out: motor nonverbal	awareness
	vocal verbal

(2) Give the student the following picture:



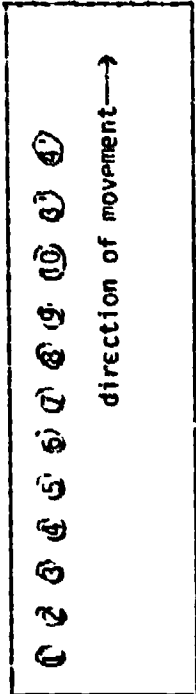
HOW MANY PIGS ARE THERE? HOW MANY ARE LEAVING THE POND?  
HOW MANY PIGS ARE STILL AT THE POND? NINE MINUS THREE  
EQUALS SIX. LET'S WRITE THAT UNDER THE PICTURE.

(3) HERE ARE TWO ARITHMETIC PROBLEMS. YOU SOLVE THEM.  $8 - 3 =$  8  
-3

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30a-c	
p15; 30a-c	

(Subtraction concepts)

(4) Use flashcards with simple subtraction problems printed on them and play the game "Around the Room." Line the pupils up side by side along one wall of the classroom (see illustration). Tell the pupils to raise their hands if they know the answer as the flashcards are shown. The pupils who have raised their hands are allowed to go to the chalkboard together, leaving markers on the floor to mark their places.



If players 2, 3, 4, 7, and 9 raise their hands when the flashcard is shown, they all go to the chalkboard together. On the command "Go" they write the simple subtraction problem and its answer. The first one to write the problem and correct answer gets to move to the front of the line. In the illustration above, if 3 were the first to write the problem and correct answer he would, upon returning to his spot, pick up his marker and move beside 10. The teacher would then show another flashcard. The group with raised hands would go to the board and if pupil 4 were the first to write the problem and correct answer, he would pick up his marker and advance to his new position beside player 3. Continue as described until a pupil advances around the room to the start/finish line.

(5) Cut 2" x 2" squares using two different colors of construction paper. Put one numeral on each card. One color has numerals between 1 and 5, the other color has numerals 6 through 9. The student draws one card from each set. He writes a subtraction problem on the board using the two numerals he drew. He then calls on someone to write the answer.

Reinforcement Activities:

(1) I AM GOING TO PUT SOME LITTLE SQUARES ON THE OVERHEAD PROJECTOR. THEY WILL SHOW SUBTRACTING PROBLEMS. SEE IF YOU CAN TELL THE SUBTRACTION STORY. WRITE IT ON THE BOARD.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30	p37; 1
	p30



(Subtraction concepts)

- (2) Make flip flashcards. Write a six and a minus sign on the card. Punch holes at the top of the card. Place cards that have the numerals one to five written on them on two pieces of yarn. Use the yarn to attach the numeral cards to the original card. Flip the numeral's over. Have the student read the problem and give the answer.

$$\begin{array}{|c|c|c|} \hline 6 & - & 1 \\ \hline \end{array} =$$

- (3) Make (or buy) individual subtraction exercise flashcards. These have a subtraction exercise on one side and the answer on the other side. Have pupils drill each other with these.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 2,3,5
	p37, 3

### Ability and Assessment:

- 1. To identify the ordinal property of an object.**

**Place nine chairs in a line, one behind another. Indicate the first chair.**

**THIS IS THE FIRST CHAIR IN THE ROW. (Indicate another.) WHICH CHAIR IS THIS ONE?**

**Continue to indicate other chairs, in random sequence, asking the same question.**

Place nine books on a shelf, one beside another. (If more than one student is involved, be sure they all have the same left to right orientation.)

**THIS IS THE THIRD BOOK ON THE SHELF. (Indicate another.) WHICH BOOK IS THIS ONE?**

**Continue to indicate other books, in random sequence, asking the same question.**

**Content-Development Activities:**

- (1) HERE ARE FOUR BOOKS. PLACE THEM ON THIS SHELF. THIS BOOK IS IN THE FIRST PLACE. THIS ONE IS IN THE SECOND, AND THIS ONE IS IN THE THIRD. NOW, IT'S YOUR TURN TO TELL ME WHAT PLACE THEY ARE IN.
  - (2) HERE ARE THREE DUCKS IN A ROW ON THE FLANNEL-BOARD. THEY ARE WALKING TO THE POND. GIVE ME THE SECOND ONE. HERE ARE THREE FLAGS IN A PARADE. GIVE ME THE FIRST ONE. HERE ARE THREE RABBITS. GIVE ME THE THIRD ONE.
  - (3) Play "Three in a Row": Have three students come to the front of the room. Line them up, one behind another.
- THE SECOND PERSON CLAP YOUR HANDS.  
THE THIRD PERSON TURN AROUND IN PLACE.  
THE FIRST PERSON WAVE YOUR HAND.

[illegible]

Task Analysis		Cognition
Process		
In: auditory verbal		conceptual
Out: motor nonverbal		recognition

## (Ordinal number concepts)

(4) Play "Handy Dandy": Have students trace their hands on a piece of paper. Ask them to do the following:

1. DRAW A RING ON THE THIRD FINGER.
2. PUT A RED FINGERNAIL ON THE FIRST FINGER.
3. DRAW A BAND-AID ON THE SECOND FINGER.

(5) LISTEN WHILE I TELL YOU A STORY: ONCE THERE WAS A LITTLE GIRL WHO WAS VERY HAPPY AND VERY EXCITED BECAUSE IT WAS HER BIRTHDAY. IN THE AFTERNOON SHE WAS GOING TO HAVE A BIG PARTY. MANY BOYS AND GIRLS WOULD BE COMING. THEY WOULD HAVE LOTS OF ICE CREAM, CAKE, AND CANDY TO EAT. KAREN CAME FIRST. BOB CAME NEXT. SUSAN CAME AFTER BOB. WHO CAME FIRST? WHO CAME SECOND? WHO CAME THIRD? . . . THEY PLAYED GAMES AT THE PARTY. EVERYONE HAD FUN.

Reinforcement Activities:

- (1) LET'S HAVE A HOPPING RACE. LINE UP BESIDE MY DESK. THE PERSON WHO IS FIRST TO HOP TO THE FAR WALL IS THE WINNER. HOP ON ONE FOOT ONLY. READY, GO! . . . WHO CAME IN FIRST? SECOND? THIRD?
- (2) Have races outside for walking, running, hopping, skipping, etc. Discuss who finishes first, second, third, etc.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
	p29	
	p37; 2k	

THE CONCEPT OF ZERO

Ability and Assessment:

1. To recognize the empty set as one which contains no members.

HOW MANY REAL DOGS ARE IN OUR CLASSROOM? WHAT DO WE CALL THE SET OF DOGS IN THE CLASSROOM? HOW MANY MEMBERS ARE IN THE EMPTY SET OF DOGS?

Content-Development Activities:

(1) DO YOU SEE ANY LIVE HORSES IN THE CLASSROOM? (response) THAT'S RIGHT, THERE ARE NO HORSES IN THE ROOM. THERE ARE ZERO HORSES IN THE CLASSROOM. WE CALL THIS KIND OF SET THE EMPTY SET. CAN YOU THINK OF ANOTHER EMPTY SET?

(2) HOW MANY TEACHERS ARE IN THIS CLASSROOM RIGHT NOW? (response) WRITE A "ONE" ON THE CHALKBOARD. HOW MANY REAL CARS ARE IN THE CLASSROOM RIGHT NOW? (response) WHAT KIND OF SET IS THAT?

Walk out of the classroom and call in: NOW HOW MANY TEACHERS ARE IN THE CLASSROOM?

(3) HOW MANY BUTTERFLIES DO YOU HAVE IN YOUR HAND RIGHT NOW? (response) WHAT IS THE NAME FOR THAT SET OF BUTTERFLIES?

(4) Give each pupil five M&M (or other) candies to hold in his hand and a worksheet with six 1-inch circles in a row.

HOW MANY M&M'S DO YOU HAVE IN THE SET IN YOUR HAND? YES, FIVE. EAT ONE M&M. NOW, HOW MANY IN THE SET? WRITE THAT NUMERAL IN THE NEXT CIRCLE. EAT ANOTHER . . . WRITE THE NUMERAL FOR HOW MANY ARE LEFT IN THE NEXT CIRCLE . . . NOW EAT THE LAST M&M. HOW MANY IN THE SET NOW? WRITE THAT NUMERAL IN THE LAST CIRCLE.

Reinforcement Activities:

(1) Repeat content-development activity #4 using other rewards such as pieces of fruits or vegetables.

(2) Have pupils stand in a circle.

CLOSE YOUR EYES. EVERYONE WHOM I TOUCH RAISE YOUR HAND. (Touch no one.) NOW OPEN YOUR EYES. HOW MANY PUPILS ARE IN THE SET OF PUPILS WITH RAISED HANDS? (Elicit: no members) WHAT DO WE CALL A SET THAT HAS NO MEMBERS? (Elicit: an empty set)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 10b	
	p37; 2,3

## (The concept of zero)

Ability and Assessment:

3. To locate zero on a numberline.

HERE IS A NUMBERLINE. FIND THE PLACE FOR ZERO.

Content-Development Activities:

- (1) Make a numberline for the numerals zero to nine:

0 1 2 3 4 5 6 7 8 9

HERE IS A NUMBERLINE. WE HAVE USED IT MANY TIMES BEFORE. FIND ONE ON THE NUMBERLINE. FIND FOUR. FIND ZERO.

- (2) Make stepping stones: Trace numerals on solid colored contact paper, cut them out, and mount them on 12" x 12" tiles of indoor-outdoor carpeting (or some other safe material). The following would be a set:

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Give the tiles and some masking tape to the pupil.

TAPE THESE NUMERALS TO THE FLOOR TO MAKE A NUMBERLINE.

- (3) Give the pupil a numberline.

PUT YOUR FINGER ON THE THREE. TWO IS LESS THAN THREE. (While saying this, slide the pupil's finger to the two.) WE MOVE THIS WAY TO FIND A NUMBER THAT IS LESS THAN THE ONE WE BEGIN WITH. ONE IS LESS THAN TWO. SLIDE OVER TO THE ONE. ZERO IS LESS THAN ONE. SLIDE TO THE ZERO.

- (4) Hold an eraser out before the pupil. Provide the pupil with a numberline (0-9).

HOW MANY ERASERS DO YOU SEE IN MY HAND? FIND THAT NUMBER ON THE NUMBERLINE. (Put the erasers on the chalkboard.) HOW MANY ERASERS DO YOU SEE IN MY HAND NOW? WHAT NUMBER STANDS FOR "NONE"? YES, ZERO. FIND THAT ON THE NUMBERLINE. FIND THE DOT THAT STANDS FOR ZERO. WRITE THE ZERO IN. NOW COUNT FROM ZERO TO NINE AS YOU POINT TO THE NUMERALS.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 6	p37; 1,2,3
p13; 7	
p13; 7	

(The concept of zero)

- (5) Give the pupil a numberline (0-9) that is printed on a piece of cardboard with a piece of plastic stapled over the numberline.  
HERE IS A CRAYON. PRACTICE MAKING A NUMBERLINE. WHAT NUMERAL WILL YOU BEGIN WITH? COMPLETE THE NUMBERLINE. NOW, ERASE IT WITH THIS CLOTH AND MAKE ANOTHER ONE.

Reinforcement Activities:

- (1) Make a set of numerals 0 to 9 on separate cards. Make a numberline, but omit the numerals.  
HERE ARE SOME NUMERALS AND A NUMBERLINE. PUT THE NUMERALS WHERE THEY BELONG.
- (2) Use a floor numberline beginning with zero. Have the students count aloud while walking up the numberline (0-9).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13: 7	p37: 1,3
p13; 6	p37; 2,3

## WHOLE NUMBER SYSTEM--GROUPING

Ability and Assessment:

5. To recognize that when subtracting zero from numerals, the remainder is the same as the subtrahend.

WRITE THE ANSWERS TO THESE SUBTRACTION PROBLEMS:

$$\begin{array}{r} 3 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -0 \\ \hline \end{array} = \quad \begin{array}{r} 4 \\ -0 \\ \hline \end{array} =$$

HOW ARE ALL THESE ANSWERS ALIKE?

Content-Development Activities:

- (1) Make tens-unit cards and ones-unit cards as follows: Cut the 1-inch squares out of oaktag. Cut ten 2" by 5" rectangles out of the same kind of material. Mark the rectangles into ten equal areas (see diagram). Give each pupil a set.

1" x 1"



2" x 5"



COUNT HOW MANY SMALL SQUARES YOU HAVE. YES, TEN. WATCH WHAT I DO ON THE OVERHEAD PROJECTOR. I AM TAKING MY SQUARES AND GROUPING THEM INTO ONE TEN. GROUP YOURS INTO ONE TEN. TAKE ONE OF THESE (show them one card which is a tens card). PLACE IT ON TOP OF YOUR SQUARES. IS IT THE SAME SIZE? LET'S COUNT HOW MANY SMALL SQUARES ARE ON THE BIG CARD. HOW MANY? YES, TEN. THE LITTLE SQUARES ARE ONES. THE BIG CARDS ARE TENS. THERE ARE TEN ONES IN ONE TEN. LET'S COUNT ONCE AGAIN TO BE SURE.

- (2) Give each pupil the sets described in #1 above; ten small cards with the numerals zero to ten written on them; a tally sheet which looks like this:

tens	ones

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 2d
	p37; 2d p29

## (Whole number system--grouping)

WATCH WHAT I PUT ON THE FLANNEL-BOARD. MAKE A SET ON YOUR DESK THAT LOOKS LIKE MINE. HOW MANY TENS DID WE USE? THE WORD IN THIS BOX SAYS TENS. FIND THAT WORD ON YOUR PAPER. HOW MANY TENS DID WE HAVE? YES, TWO. WRITE A TWO IN A BOX BELOW THE WORD TENS. LOOK AT THE WORD NEXT TO IT. WHAT DO YOU THINK THE WORD SAYS? IT IS FOR THE ONES. HOW MANY ONES DO WE HAVE? YES, THREE. WRITE A THREE IN THE BOX BELOW THE WORD ONES. TWO TENS AND THREE ONES.

Note: Give much practice in this activity before going to the next step.

- (3) Give the pupil the materials described in #2. The tally sheet, however, should not have a line separating the tens from the ones. Do activities similar to those described in #2.
- (4) Continue working as described in #2. However, do not use a tally sheet. Give the pupil a small piece of paper with a line on which to print the numerals.

Reinforcement Activities:

- (1) Give the pupil colored toothpicks bound in sets of ten plus singles. Let him group them in different ways. He is to record the groups as he does them.
- (2) Give the pupil a worksheet which shows various sets of tens and ones. Have him write the numeral(s) under each set.
- (3) Ask students to bring in any collections that they might have (baseball cards, postcards, used railroad tickets, little cars, etc.). Ask them to group each collection and record the numeral.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 15,17, 19,20, 21,22	p14; 15,17, p37; 1g



(Whole number systems--grouping)

Ability and Assessment:

8. To count to one hundred by ones.

COUNT TO ONE HUNDRED.

Content-Development Activities:

- (1) Present the pupil with a box of 100 pennies.

PLACE THEM IN PILES OF TEN PENNIES EACH. COUNT THE PENNIES BY TENS.

- (2) HERE IS A HUNDREDS CHART. COUNT TO ONE HUNDRED BY TENS. POINT TO THE NUMERALS AS YOU SAY THEM.

Task AnalysisProcessCognition

In: visual verbal  
Out: vocal verbal  
motor nonverbal

- (3) Give the pupil 100 playing cards and 10 rubberbands.

HERE ARE ONE HUNDRED CARDS. COUNT THEM. EACH TIME YOU GET A SET OF TEN, PUT A RUBBERBAND AROUND THEM. LOOK AT ME WHILE I DO THE FIRST ONE. WRITE THE NUMERAL TEN ON THIS PIECE OF PAPER. LET'S SEE IF WE HAVE TEN MORE. DO WE? LET'S BUNDLE THOSE. HERE IS A PIECE OF PAPER: WRITE TWENTY ON IT. PLACE IT WITH THE SECOND BUNDLE. (Continue in this way to one hundred.) LET'S READ THE NUMERALS UNDER THE BUNDLES--TEN, TWENTY, THIRTY, . . . HOW MANY CARDS ARE IN EACH BUNDLE? YES, TEN. WHEN WE COUNT TO ONE HUNDRED USING ONLY THE NUMERALS ON THESE PIECES OF PAPER, IT IS CALLED COUNTING TO ONE HUNDRED BY TENS.

Reinforcement Activities:

- (1) Play the game "Hide and Seek." The pupil who is "It" seeks the students hidden around the room, after counting to one hundred by tens.
- (2) Give the pupil ten dimes (real or play money) and have him count the coins.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 29	p37; 2d
p38; 2,3	

(whole number system--grouping)

- (3) Draw a chalk bull's-eye target with multiples of ten in each circle for a beanbag-toss game, i.e.



Each time the pupil's beanbag lands in a circle he gets the appropriate number of transparent packages of ten raisins per package. At the end of the game, the child counts his raisins (by saying ten for each package of ten raisins) and records or reports his score.

Note: Use sticks or other objects if raisins are not available.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 19

(Whole number system--grouping)

Ability and Assessment:

16. To write numerals in the hundreds, using a place-value chart.

Provide the students place-value charts. Dictate 3-digit numerals.

HERE IS A PLACE-VALUE CHART. WRITE THESE NUMERALS ON THE CHART: 153, 248, 335, etc.

Content-Development Activities:

- (1) Review the reinforcement activities for ability #5 under Whole Number System--Grouping.
- (2) Show the pupil a chart which has places for hundreds, tens, and ones. Cover up the hundreds column.  
  
READ THE WORDS TO ME. HERE IS A NUMERAL. IT IS 132. WRITE THE 2 IN THE ONES COLUMN. WHERE WILL THE NUMERAL 3 GO? WRITE IT THERE. WE STILL HAVE A NUMERAL. THIS WORD SAYS HUNDREDS. WE PUT OUR HUNDREDS NUMERALS HERE. DO YOU KNOW WHERE TO PUT OUR LAST NUMERAL? GOOD. READ THE COMPLETE NUMERAL FOR ME.

- (3) Give the pupil a worksheet like the following:

hundreds	tens	ones

I WILL TELL YOU A NUMBER. WRITE IN ON YOUR CHART. (Give him five to ten 3-place numerals.)

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: motor verbal	recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Whole number system--grouping)Reinforcement Activities:

- (1) Make a tape recording numerals in the hundreds. Give the pupil a chart on which to write numerals he hears.
- (2) Give the pupil a magnetic place-value chart and magnetic numerals. Have the pupil place different numerals in the columns and read the numerals to you. Then reverse the process and dictate a numeral for the pupil to place in the correct place-value columns.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 14	p29 p37; 2c

WHOLE NUMBER SYSTEM--MULTIPLICATION AND DIVISION--BASIC FACTS

Ability and Assessment:

3. To multiply orally two equivalent sets with a multiplicand not exceeding ten.

Provide several pairs of sets of like objects, each set having 1-10 members. For example, use two sets of 5 pennies each, two sets of 4 balls each, two sets of 7 pencils each. Present a pair of sets to the student.

HERE ARE TWO SETS OF PENNIES (BALLS, etc.). USE THESE SETS AND TELL A MULTIPLICATION STORY. (Expected response: three times two equals six.)

Content-Development Activities:

- (1) HERE ARE TWO FELT SQUARES. PUT THEM ON ONE SIDE OF THE FLANNEL-BOARD. HERE ARE TWO MORE FELT SQUARES. PUT THESE ON THE OTHER SIDE OF THE FLANNEL-BOARD. HOW MANY SETS DO WE HAVE? YES, THERE ARE TWO SETS. BRING THIS SET OVER BY THE OTHER SET. NOW WE HAVE A NEW SET. HOW MANY MEMBERS ARE IN OUR NEW SET? YES, FOUR. TWO TIMES TWO EQUALS FOUR. WHAT DOES TWO TIMES TWO EQUAL?

- (2) Show the pupil the following picture:



HERE IS A SET OF STEAMBOATS. HOW MANY DO YOU SEE? YES, THREE. HERE IS ANOTHER SET OF STEAMBOATS. HOW MANY OF THOSE DO YOU SEE? IF WE JOIN THE TWO SETS OF STEAMBOATS, HOW MANY WILL WE HAVE ALL TOGETHER? THREE TIMES TWO EQUALS SIX. WHAT DOES THREE TIMES TWO EQUAL?

- (3) HERE IS A PROBLEM. ANSWER IT. THERE ARE FIVE HORSES IN THE PASTURE. THE FARMER OPENS THE BARN DOOR AND LETS OUT FIVE MORE HORSES. NOW THERE ARE TWO SETS OF FIVE HORSES IN THE PASTURE. HOW MANY HORSES ARE IN THE NEW SET OF HORSES IN THE PASTURE?  $5 \times 2 = 10$ .

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: vocal verbal	recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30a-c 34c	p62; 5 p68; 3 p69; 4
	p29
	p37; 2,3

(Whole number system--multiplication and division--basic facts)

(4) After three or four basic facts have been developed, make flashcards which show the story, e.g..

x x	x x
x x	x x

Equation  
4 x 2 = 8

TELL ME THE MULTIPLYING STORY.

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: vocal verbal	recognition

(5) Use flashcards with only the numerals. Show the child the cards. Make a separate pile for those he misses. Go back and show him the picture flashcards for these facts. Go through the numeral flashcards once again.

Reinforcement Activities:

(1) Use small pieces of paper cut in squares. Show a multiplication story with the small pieces of paper. Have the pupil tell the story.

(2) Use flashcards and play "Around the Room." Line the students up side by side along one wall of the room. Display a flashcard. The pupil who provides the correct answer moves to the front of the line, so that the entire line moves around the room. The pupil who is first to circle the room and return to the starting point is the winner.

Note: As appropriate situations arise in the classroom, use multiplication stories for drill purposes.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 16	p37; 2k
	p37; 1g

(Whole number system--multiplication and division--basic facts)

Ability and Assessment:

8. To divide a set into two equivalent subsets when the dividend does not exceed ten.

Provide 2, 4, 6, 8, or 10 like objects.

HERE IS A SET OF TWO (FOUR, etc.) BALLS (PENCILS, etc.). DIVIDE THE SET INTO TWO SUBSETS THAT ARE ALIKE.

Content-Development Activities:

(1) Give the pupil six bottle caps.

WE HAVE ONE SET OF BOTTLE CAPS. LET'S MAKE TWO EQUAL PILES OUT OF THEM. ONE BOTTLE CAP HERE, ONE THERE. HOW MANY BOTTLE CAPS DO WE HAVE IN EACH PILE? (Put the bottle caps back into one pile; repeat the procedure, saying this time: SIX DIVIDED BY TWO EQUALS THREE.)

(2) Show the pupil the following:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

DIVIDE THE SQUARES INTO TWO EQUAL SETS. HOW MANY DO YOU HAVE IN EACH SET? WHAT DOES EIGHT DIVIDED BY TWO EQUAL?

Task Analysis	
Process	Cognition

In: visual nonverbal  
Out: motor nonverbal  
(the act of dividing the sets)  
vocal verbal  
(the response to HOW MANY SETS  
DO YOU HAVE and WHAT DOES EIGHT  
DIVIDED BY TWO EQUAL?)  
conceptual  
recall

(3) Give the pupil a piece of paper divided into four sections. Place one of the following directions in each box:

1. Draw nine baseballs. Group them in threes. ( $9 \div 3 = 3$ )

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30a-c	
p14; 15,17,19	
p14; 16	p38; 2k,3

(Whole number system--multiplication and division--basic facts)

- 2. Draw six planes. Group them in twos. ( $6 \div 2 = 3$ )
- 3. Draw eight boats. Group them in fours. ( $8 \div 4 = 2$ )
- 4. Draw ten sticks. Group them in fives. ( $10 \div 5 = 2$ )

(4) Give the pupil a set of colored blocks.

DIVIDE THE SET OF SIX BLOCKS INTO TWO EQUAL SUBSETS.

Continue giving other facts for him to illustrate.

Reinforcement Activities:

- (1) Draw sets of various objects on the board. Divide the students into two teams. Have one member of each team come to the board. The first member of each team to make two equivalent subsets wins a point for his team.

Note: Review simple division problems through games similar to activity #1.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p37; 2k,3
	p37, 2k



WHOLE NUMBER SYSTEM--ADDITION AND SUBTRACTION WITHOUT AND WITH REGROUPING

Ability and Assessment:

1. To add a two-digit numeral and a one-digit numeral requiring no regrouping (carrying).

WRITE THE ANSWERS TO THESE ADDITION PROBLEMS:

$$\begin{array}{r} 10 \\ 1 \end{array} \begin{array}{r} 56 \\ 3 \end{array} \begin{array}{r} 92 \\ 7 \end{array} \begin{array}{r} 33 \\ 2 \end{array} \begin{array}{r} 41 \\ 6 \end{array}$$

Content--Development Activities:

- (1) COUNT THESE PENCILS. HOW MANY ARE THERE? YES, THERE ARE TEN. HERE IS ONE MORE PENCIL. HOW MANY PENCILS DO YOU HAVE NOW? TEN PLUS ONE EQUALS ELEVEN. YOU SAY THAT. NOW WRITE IT.

Task Analysis

Process

In: visual nonverbal  
Out: motor nonverbal  
vocal verbal

Cognition

conceptual  
awareness

- (2) HERE IS A PICTURE. HOW MANY BEES ARE TOGETHER? HOW MANY BEES ARE COMING TO JOIN? HOW MANY BEES ARE THERE ALL TOGETHER?



- (3) Write an addition exercise on the chalkboard or overhead projector, e.g.,

$$\begin{array}{r} 15 \\ 1 \\ \hline 16 \end{array} \quad \begin{array}{r} 10 \\ 5 \\ \hline 15 \end{array}$$

M 91

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 9 p15; 30a-c	p68; 2
p14; 15,17, 19	
	p30

(Whole number system--addition and subtraction without and with regrouping)

- (4) HERE IS AN ADDITION PROBLEM. WRITE THE CORRECT ANSWER: 14 HERE'S ANOTHER: YOU WRITE THE CORRECT ANSWER TO THIS ONE: 13 etc.  $\begin{array}{r} 5 \\ 13 \\ \hline 18 \end{array}$
- (5) WE HAVE FIFTY-SIX THINGS AND WE ARE GOING TO ADD THREE MORE THINGS TO IT. COVER THE FIVE IN THE TENS COLUMN. NOW LET'S LOOK AT THE PROBLEM IN THE ONES COLUMN. CAN YOU READ IT TO ME? WHAT DOES 6 PLUS 3 EQUAL? VERY GOOD, WRITE THE 9 IN THE ONES ANSWER COLUMN.
- LET'S LOOK AT THE REST OF THE PROBLEM. DO YOU REMEMBER WHAT WAS IN THE TENS COLUMN? ONLY A FIVE. POINT TO WHERE WE SHOULD WRITE IT IN OUR ANSWER. READ THE ANSWER TO ME. READ THE PROBLEM AND THE ANSWER TO ME.
- (6) LOOK AT THIS PROBLEM:  $\begin{array}{r} 56 \\ 3 \\ \hline \end{array}$  READ IT TO ME. NOW WRITE IT AND ITS ANSWER. Present other exercises.
- (7) WRITE THE ANSWERS TO THESE PROBLEMS:  $\begin{array}{r} 92 \\ 7 \\ \hline \end{array}$   $\begin{array}{r} 16 \\ 2 \\ \hline \end{array}$   $\begin{array}{r} 35 \\ 3 \\ \hline \end{array}$   $\begin{array}{r} 38 \\ 1 \\ \hline \end{array}$   $\begin{array}{r} 41 \\ 6 \\ \hline \end{array}$

Reinforcement Activities:

- (1) Draw a verticle flagpole on the chalkboard. Cut out a paper flag. Stick or tack it to the bottom of the flagpole. Make a transparency of about six problems. As a child correctly fills in an answer, he can raise the flag one unit per answer to get to the top.
- (2) Draw an outline of a large house on a piece of oaktag or cardboard. Draw windows, a door, and a chimney on other pieces of oaktag, drawing one addition problem on each. Put the parts with the problems in a bag. Have a pupil draw one out. If it is answered correctly, the pupil may stick or tack that part of the house to its proper place.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 15,17	
	p37; 2k
	p30

WHOLE NUMBER SYSTEM--MULTIPLICATION AND DIVISION OF TWO- AND THREE-DIGIT NUMBERS

Ability and Assessment:

1. To multiply using one digit in the multiplier and two digits in the multiplicand.

WRITE THE ANSWERS TO THESE MULTIPLICATION PROBLEMS:

$$\begin{array}{rcl} 12 \times 4 = & 63 \times 3 = & 35 \times 7 = \\ & \underline{\times 2} & \underline{\times 8} & \underline{\times 5} \\ & 24 & 12 & 46 \end{array}$$

Content-Development Activities:

- (1) Show the pupil the problem:  $\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$ . Cover up the 2 in the tens column by using a card.

MULTIPLY THIS:  $\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$  WRITE THE ANSWER UNDER THE PROBLEM.

Show the pupil the entire problem:  $\begin{array}{r} 23 \\ \times 4 \\ \hline 12 \\ 80 \end{array}$

WE HAVE MULTIPLIED THE THREE TIMES FOUR BUT WE HAVE NOT MULTIPLIED THE TWENTY TIMES FOUR. WHAT IS FOUR TIMES TWENTY? WRITE THAT DOWN:  $\begin{array}{r} 23 \\ \times 4 \\ \hline 12 \\ 80 \end{array}$

WE KNOW NOW THAT THREE TIMES FOUR IS TWELVE. TWENTY TIMES FOUR IS EIGHTY. WE CAN FIND OUT WHAT TWENTY-THREE TIMES FOUR EQUALS IF WE ADD OUR TWO ANSWERS TOGETHER. DO THAT:  $\begin{array}{r} 23 \\ \times 4 \\ \hline 12 \\ 80 \\ \hline 92 \end{array}$

Note: Continue working other problems through with the pupil in a similar way. If you believe the pupil can generalize dropping the zero, explain this short-cut to him. When all the above procedures are mastered by the pupil, teach him how to carry from the ones column to the tens column. Give him several examples to practice on. His answers should now take the following form:  $\begin{array}{r} 23 \\ \times 4 \\ \hline 12 \\ 80 \\ \hline 92 \end{array}$

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 13	p62; 5
p15; 30b,c 34c	

(Whole number system--multiplication and division of two- and three-digit numbers)

Task Analysis		TEACHER TIPS	
Process	Cognition	Teaching Resources	Teaching Strategies
<p>In: visual verbal (showing the (2)3 problem and its progression)</p> $\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$ <p>auditory verbal (WE CAN FIND OUT WHAT TWENTY-THREE TIMES FOUR EQUALS IF WE ADD OUR TWO ANSWERS TOGETHER.)</p> <p>Out: motor verbal</p>	<p>conceptual</p> <p>awareness</p>		
<p>(2) If the pupil does not learn multiplication by the above process, tell him that <math>\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}</math> means that we add 23 four times. Help him to apply this principle in solving this type of problem.</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Make a bulletin board display. Give the students a ditto containing twelve multiplication problems. After correcting, help those students who made mistakes to understand what they did wrong. After the students have rewritten their corrected papers, place them on the bulletin board.</p> <p>(2) Mount a drillsheet on a piece of cardboard. Overlay the sheet with a piece of clear plastic. Staple the plastic to the cardboard. Give the drillsheet to a pupil. When he has completed the work, check it. He may then erase it and do another sheet of problems on his clear plastic worksheet.</p>			p37; 3c

WHOLE NUMBER SYSTEM--MULTIPLICATION AND DIVISION OF TWO- AND THREE-DIGIT NUMBERS

Ability and Assessment:

5. To divide with two digits in the dividend and one digit in the divisor.

WRITE THE ANSWERS TO THESE DIVISION PROBLEMS:

$28 \div 2 =$        $96 \div 8 =$        $51 \div 3 =$        $2\overline{)66}$        $6\overline{)72}$        $3\overline{)84}$        $7\overline{)9T}$

Content-Development Activities:

- (1) READ THESE PROBLEMS TO ME:  $28 \div 2 =$        $3\overline{)84}$        $7\overline{)9T}$   
IN THE FIRST PROBLEM WE HAVE TWENTY-EIGHT THINGS. WE WANT TO KNOW HOW MANY THINGS WE WOULD HAVE IF WE DIVIDED THOSE THINGS INTO TWO PILES.
- (2) THE TWENTY-EIGHT THINGS ARE GOING TO BE DIVIDED. WE CALL TWENTY-EIGHT IN THIS PROBLEM THE DIVIDEND. POINT TO THE DIVIDEND FOR ME. READ THE NUMERAL IN THE DIVIDEND.
- THE NUMERAL TWO TELLS US HOW MANY PILES WE ARE GOING TO DIVIDE THE TWENTY-EIGHT THINGS INTO. IT IS CALLED THE DIVISOR. TOUCH THE DIVISOR FOR ME. WHAT NUMERAL IS IN THE DIVISOR?
- WE LOOK AT THE DIVIDEND AND SAY TO OURSELVES, "HOW MANY TIMES CAN I DIVIDE THE DIVIDEND BY THE DIVISOR?" LET'S SEE. IT WILL HELP IF WE COVER UP THE SECOND NUMBER.  $2 \div 2 =$  . TELL ME HOW MANY TWOS THERE ARE IN TWO. YES, JUST ONE. WRITE THAT DOWN.  $2 \div 2 = 1$ . THAT WASN'T REALLY JUST A TWO. HERE IS THE EIGHT. HOW MANY TWOS ARE THERE IN EIGHT? YES, FOUR. WRITE THAT NEXT TO THE ONE. TWENTY-EIGHT DIVIDED BY TWO EQUALS FOURTEEN. READ THE PROBLEM TO ME.

Note: Continue giving practice problems and following a similar procedure as that above. If the pupil is having serious difficulty, it would be well to begin with toothpicks and show the division process in a concrete way. When the pupil is comfortable doing it in a concrete way, begin to work with the abstract symbols.

Reinforcement Activities:

- (1) Give the pupil a set of 40 pieces of wrapped candy. Ask him to divide it between two people, four people, eight people. Have him write the problems each time he solves one.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30b,c	
p15; 30b,c	
	p37; 2k
	p37; 3c

## (Whole number system--multiplication and division of two- and three- digit numbers)

- (2) Make a drill sheet consisting of fifteen problems. The problems should be placed in one column along the left-hand side of the paper. On the backside of the paper, write the same problems parallel to the ones on the front. These should include the correct answers. When the student has completed the front column, he creases the paper so that the problems and answers (B) are next to the problems (A) he has answered. The pupil corrects his own paper.

Example: A

a) $2 \overline{)18}$	
b) $5 \overline{)65}$	

B

a) $2 \overline{)18}$	9
b) $5 \overline{)65}$	13

Note: Suggested alternative teaching procedure:

If you have thoroughly built up the concept of division as being repeated subtraction in teaching the basic division facts, you should have no trouble in using the same concept here.  $2 \overline{)28}$ : How many times can we subtract two to get back to zero? If we find that out, we can find out how many twos are in 28. But it would take a long time to subtract only two each time so we subtract multiples of two. ("Multiples" haven't been taught yet. This term should be introduced when teaching the multiplication facts.):  $\overline{)28}$

$$\begin{array}{r} -6 \\ \overline{)28} \\ -6 \\ \overline{)16} \\ -6 \\ \overline{)10} \\ -6 \\ \overline{)4} \\ -4 \\ \overline{)0} \end{array}$$

WE SUBTRACTED FIRST THREE GROUPS OF 2, THEN THREE MORE GROUPS OF 2, etc. HOW MANY GROUPS OF 2 DID WE SUBTRACT IN ALL? WRITE THE ANSWER ABOVE THE 28.

This step-by-step process of understanding division as repeated subtraction is built up very clearly in Addison Wesley Series Book 3.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 30b,c	

## FRACTIONS

Ability and Assessment:1. To recognize one whole.

Place before the student paper or cardboard cut-outs of: a circle (diameter at least six inches),  $\frac{1}{2}$  circle,  $\frac{1}{3}$  circle, and  $\frac{1}{4}$  circle. For example, use a paper plate and sections of a plate.

LOOK AT THESE PIECES. POINT TO (PICK UP, etc.) THE PIECE THAT IS ONE WHOLE CIRCLE.

2. To recognize one half.

Place before the student paper or cardboard cut-outs of a whole and a half shape. For example, use whole and half circles, whole and half squares. Alternatively, use objects which can be halved easily and obviously. For example, use apples, cookies.

LOOK AT THESE. PICK UP (SHOW ME, etc.) THE HALF CIRCLE (APPLE, etc.).

Content-Development Activities:

(1) Direct the students' attention to many whole objects, e.g., fruit, sheets of paper, crayons, chalk, etc. Explain that these are all whole objects (things).

(2) Show the student an apple.

THIS IS ONE WHOLE APPLE.

Cut it into two halves. Present one half in each hand.

THIS IS ONE HALF . . . THIS IS ONE HALF. JOHNNY, HOW COULD YOU MAKE THIS LOOK LIKE A WHOLE APPLE?

(3) Show the student a piece of paper and fold it evenly in half.

HERE IS MY WHOLE PIECE OF PAPER. I FOLDED IT EVENLY ONCE. SEE THE LINE. (Fold half of the paper back so that only half of the paper is showing.) THIS IS ONLY ONE HALF OF THE PAPER. (Open the paper up.) THIS SIDE IS ONE HALF OF THE PAPER. POINT TO THE OTHER HALF. RUN YOUR FINGERS AROUND THE EDGE OF THE WHOLE PAPER. RUN YOUR FINGER AROUND THE EDGE OF JUST HALF THE PAPER.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p13; 8 p14; 13 p16; 35,37	p37; 2c
p14; 13	

(Fractions)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p>(4) Place three circles on the flannel-board. Each one can be divided in half.</p> <p>GIVE ME HALF OF THE BIGGEST CIRCLE. GIVE ME HALF OF THE SMALLEST CIRCLE. GIVE ME HALF OF THE LAST CIRCLE.</p> <p>(5) Give the pupil a worksheet that has the outline of an apple, an orange, and a pear on it.</p> <p>HERE IS A PENCIL AND A RULER. DIVIDE EACH PIECE OF FRUIT IN HALF. HOW MANY HALVES OF FRUIT DO YOU HAVE?</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Give the pupil an apple and a dull table knife.</p> <p>TOM, HERE IS A WHOLE APPLE AND A KNIFE. GIVE TIM HALF OF THE APPLE.</p> <p>(2) Use pictures to illustrate one whole bottle of beverage, 1/2 bottle of beverage, one dollar, 1/2 dollar, one whole car, 1/2 car.</p> <p>Note: Point out that when the class is divided into two equal parts it has been divided in half. When the game is over, point out that the whole class is all of its members.</p>	<p>p14; 13</p> <p>p14; 13</p>	<p>p29</p>



MEASUREMENT--TIME

Ability and Assessment:

14. To read aloud time by the half-hour and quarter-hour from a clock.

HERE IS A CLOCK. I WILL SET THE CLOCK FOR DIFFERENT TIMES. READ THE TIME. USING HALF-HOUR AND QUARTER-HOUR TIMES.

Set the clock as stated. For example, use 3:30, 2:15, 1:45, 8:15, 9:30, 4:45, 12:15, 12:45.

Content-Development Activities:

(1) HERE IS A PAPER PLATE FOLDED INTO FOUR EQUAL SECTIONS. WHAT IS ONE OF THESE SECTIONS CALLED? (a quarter) WHAT ARE TWO OF THESE SECTIONS CALLED? (a half)

(2) WHEN THE MINUTE HAND (THE LARGE HAND) POINTS TO THE THREE, YOU READ QUARTER PAST THE NUMERAL THAT THE HOUR HAND (THE SMALL HAND) IS POINTING TOWARD. (Demonstrate.)

Have students read chorally and then as individual volunteers, the quarter past the hour that you set on the clockface.

(3) Demonstrate on a cardboard clockface as you give the following directions:

IF THE MINUTE HAND (THE LARGER HAND) IS POINTING TO THE SIX, THE TIME CAN BE READ AS HALF PAST THE HOUR. WHEN THE MINUTE HAND POINTS TO THE SIX, WE CAN READ HALF PAST THE NUMERAL THAT THE HOUR HAND (THE SMALL HAND) IS POINTING TOWARD.

Have students read chorally and then as individual volunteers, the half past the hour that you set on the clockface.

- (4) Repeat format of activities #2 and 3 in teaching "a quarter before an hour."

Task Analysis	
Process	Cognition
In: visual verbal	conceptual
Out: vocal verbal	recognition

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 25,26	p37; 2d
p14; 25,26	p71; 8

(Measurement--time)

- (5) HERE IS A PAPER CLOCK FOLDED INTO FOUR EQUAL SECTIONS. HOW MANY MINUTES FALL ON EACH ONE OF THE CREASES? (0, 15, 30, 45) IF THE MINUTE HAND ON THE CLOCK POINTS TO THE "15-MINUTE" MARK, WHAT PART OF THE MINUTE CIRCLE HAS THE MINUTE HAND GONE AROUND? (Elicit: one quarter.) IF THE HAND POINTS TO THE "30-MINUTE" MARK, WHAT PART OF THE MINUTE CIRCLE HAS THE MINUTE HAND GONE AROUND? (Elicit: one half.) IF THE HAND POINTS TO THE "45-MINUTE" MARK, WHAT PART OF THE CIRCLE IS LEFT BEFORE THE HAND REACHES THE TOP? (Elicit: one quarter.)

Note: Proceed very slowly with each part of this activity.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 25,26	p71; 8

## MEASUREMENT--LINEAR (U.S. CUSTOMARY)

Ability and Assessment:12. To convert yards to feet and vice versa.

JERRY RAN 10 YARDS. HOW MANY FEET DID HE RUN? RON SWAM ACROSS THE POOL. IT WAS 36 FEET WIDE. HOW MANY YARDS DID HE SWIM? MARY USED 12 FEET OF STRING TO TIE A PACKAGE. HOW MANY YARDS OF STRING DID SHE USE? JEAN DREW A PICTURE ONE YARD HIGH. HOW MANY FEET HIGH WAS IT?

WRITE THE ANSWERS TO THESE PROBLEMS:

8 yd = \_\_\_\_ ft; 2 yd = \_\_\_\_ ft; 9 ft = \_\_\_\_ yd; 3 ft = \_\_\_\_ yd

Content-Development Activities:

(1) Use a 12-inch ruler.

HOW MANY FEET LONG IS A RULER? (Elicit: one foot.)

(2) HERE IS A YARDSTICK. LET'S TAKE THE RULER AND FIND OUT HOW MANY FEET ARE IN A YARD. HOW MANY ARE THERE?

(3) Give the pupil several objects in the room to measure, using a yardstick, and then a 12-inch ruler. Some suggestions would be: the doorway, teacher's desktop, window casement, and width of a hall.

(4) Write the following on a transparency: (How many) feet = \_\_\_\_ 3 \_\_\_\_ yards?

\_\_\_\_ 6 \_\_\_\_ feet = (how many) yards?

(How many) feet = \_\_\_\_ 6 \_\_\_\_ yards?

Have the pupil read a question  $\leftrightarrow$  answer statement and give the missing number.

Task Analysis	
Process	Cognition
In: visual verbal	conceptual
Out: vocal verbal	recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 27	p61; 2
p14; 13	p30

(Measurement--linear (U.S. Customary))

Reinforcement Activities:

- (1) Give the pupil three strips of paper. They should be of the following dimensions: one yard, two yards, and three yards long. Give him a ruler and a yardstick. Have him measure each strip of paper using the ruler and the yardstick. Have him record the measurements in yards and in feet.
- (2) Make a dittoed worksheet with several examples, as follows:
- a) 3 feet = \_\_\_\_ yards
  - b) 6 feet = \_\_\_\_ yards
  - c) 2 yards = \_\_\_\_ feet
  - d) 3 yards = \_\_\_\_ feet
- Have the pupil write the correct numerals in the blanks.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
	p71; 8	
	p37; 20	

MEASUREMENT--VOLUME AND WEIGHT (U.S. CUSTOMARY)

Ability and Assessment:

5. To measure liquid ounces.

Place before the student a standard 8-ounce measuring cup (of clear glass or plastic) having 1-ounce units marked on the side. Also give him a container of the milk commonly used in your area.

HERE IS A CARTON (BOTTLE, etc.) OF MILK. HERE IS A MEASURING CUP. HOW MANY OUNCES OF MILK ARE IN THE CARTON (BOTTLE, etc.)?

HERE IS A MEASURING CUP. MEASURE 3 (6, 8, etc.) OUNCES OF MILK IN THE CUP.

Content-Development Activities:

(1) Present a baby bottle with many ounce-measurement marks on the side.

POINT TO THE ONE-OUNCE MARK: POINT TO THE TWO-OUNCE MARK, etc.

(2) Use a one-ounce measuring cup or glass and an 8-ounce measuring cup.

THIS IS A ONE-OUNCE MEASURE. LET'S SEE HOW MANY OUNCES THIS CUP WILL HOLD. LET'S COUNT TOGETHER AS JOHNNY POURS EACH OUNCE INTO THE BIG CUP. HOW MANY OUNCES WERE THERE IN THE CUP? YES, EIGHT.

(3) Provide four equivalent 8-ounce cups. Whisper to two volunteer pupils: PUT FOUR OUNCES OF WATER IN THIS CUP and to two other volunteer pupils: PUT TWO OUNCES OF WATER IN THIS CUP. After the four pupils have done this, have another pupil come to the front of the room.

WHICH CONTAINERS HAVE FOUR OUNCES OF WATER IN THEM? . . . HOW DO YOU KNOW? (Pupil should say that a whole cup holds eight ounces, therefore, the half-full cups hold four ounces each.)

(4) Divide the class into pairs. For each pair, provide a measuring cup, a container of milk, a container of chocolate syrup, and a large pan to heat the milk and chocolate combination in.

LET'S MAKE SOME HOT CHOCOLATE. BOTH CHILDREN IN EACH PAIR MEASURE SIX OUNCES OF MILK. PUT IT IN THE PAN. NEXT, EACH PAIR OF PUPILS MEASURE TWO OUNCES OF CHOCOLATE SYRUP. PUT THE SYRUP IN THE PAN.

Heat and serve.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p14; 13	
	p37; 2c
	p37; 2k

(Measurement--volume and weight (U.S. Customary))

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p><u>Reinforcement Activities:</u></p> <p>(1) On a transparency, print a simple recipe that requires measuring in ounces.</p> <p>POINT TO THE LINE ON THE CUP THAT TELLS HOW MUCH (FLOUR), HOW MUCH (SUGAR), etc.</p> <p>Have the students measure and cook these ingredients, and serve the results as a snack; then have them copy the recipe for their own use.</p> <p>(2) Divide a ditto into four sections. In each section draw a measuring cup with the ounce units marked on the side. Place one of the following directions in each box:</p> <p>a) Color in two ounces.</p> <p>b) Color in four ounces.</p> <p>c) Color in six ounces.</p> <p>d) Color in eight ounces.</p>		<p>p30</p> <p>p47; 1</p>

(Measurement--volume and weight (U.S. Customary))

Ability and Assessment:

21. To measure using pounds.

Provide a bathroom scale and a household scale (for example, the type that measures to 24 pounds). Provide objects to weigh. For example, use a sack of apples, a pail of water.

HERE IS A SCALE LIKE ONE YOU MIGHT USE AT HOME. WHAT DOES THIS BAG OF APPLES WEIGH? HERE IS A BATHROOM SCALE. WHAT DO YOU WEIGH?

Content-Development Activities:

- (1) THIS IS ONE POUND. PUT IT ON THE SCALE AND LOOK AT WHAT THE NEEDLE POINTS TO.
- (2) WEIGH THESE OBJECTS (WEIGHTS). FIND THE ONE THAT REGISTERS ONE POUND.
- (3) Wrap a package that weighs two pounds. Prepare it to look as if it is going to be mailed.  
WHEN YOU MAIL PACKAGES, THEY ARE WEIGHED. YOU PAY POSTAGE ACCORDING TO THE WEIGHT. WEIGH THIS PACKAGE. TELL ME HOW MUCH IT WEIGHS.
- (4) Give the pupil foodstuffs which weigh even pound multiples. Have him weigh them. If the poundage is marked on the package, call the pupil's attention to it.
- (5) Take the students to the nurse's office. Have each pupil weigh himself (to the nearest. pound). (Assist when necessary.) After returning to the classroom, have each pupil write his name and weight on the chalkboard.

Reinforcement Activities:

- (1) Take the students to the commissary. Have them read the pounds marked on labels of canned goods to the nearest pound.
- (2) Set up a store in the classroom. Use canned goods and cereal products. Have the students weigh the products. Help them make a list on the chalkboard of the product and its weight.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 28,29	p37; 2c

MONEY

Ability and Assessment:

5. To recognize a nickel as equivalent to five pennies.

Place before the student a nickel and a handful of pennies.

HERE ARE SOME COINS. SHOW ME HOW MANY PENNIES ARE EQUAL TO ONE NICKEL.

Content-Development Activities:

- (1) Line up five pennies and count them individually; emphasize five cents. Put down one nickel and say "five"; emphasize five cents.

THESE FIVE PENNIES ARE THE SAME AS THIS ONE NICKEL. THEY WILL BOTH BUY A FIVE-CENT CANDY BAR.

- (2) Give the pupil a nickel. Have him come to the front of the room.

PICK UP THE NUMBER OF PENNIES THAT ARE THE SAME AS THIS NICKEL.

- (3) MARY, DROP THIS NICKEL IN THE CUP. HOW MANY COINS DID YOU HEAR DROP INTO THE CUP? TOMMY, DROP THESE PENNIES INTO THE CUP (five pennies). HOW MANY COINS DID YOU HEAR DROP INTO THE CUP? JANE, WHAT IS THE NAME OF THE COIN THAT MARY DROPPED INTO THE CUP? RALPH, WHAT IS THE NAME OF THE COINS TOMMY DROPPED IN THE CUP? DICK, HOW MUCH MONEY DID MARY DROP IN THE CUP? HOW MUCH MONEY DID TOMMY DROP IN THE CUP?

- (4) Print a 1 and a 5 on the chalkboard. Print the ¢ sign after each one. Tell the pupils what the symbol means.

ONE CENT, FIVE CENTS. READ WHAT I HAVE WRITTEN ON THE CHALKBOARD.

- (5) TAKE THE CHALK AND WRITE OVER THE ONE CENT. NOW TAKE THE CHALK AND WRITE OVER THE FIVE CENTS. WRITE ONE CENT AND FIVE CENTS ON THE BOARD. YOU MAY LOOK AT MINE IF YOU WANT TO.

Reinforcement Activities:

- (1) Give pupil four pennies and ask him to tell you how many more pennies are needed to equal one nickel. Repeat using three pennies, two pennies, etc.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p15; 29	p37; 2k



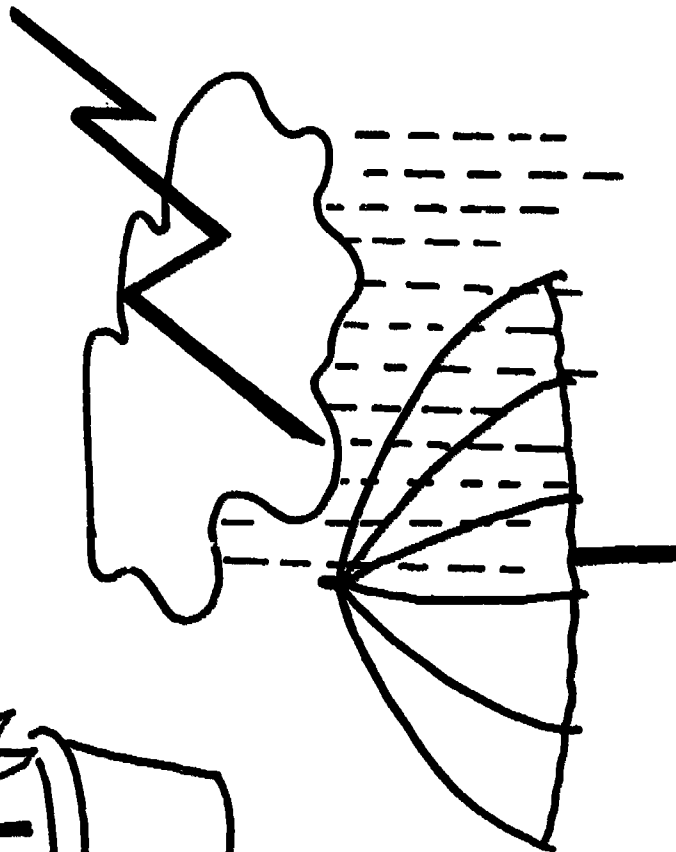
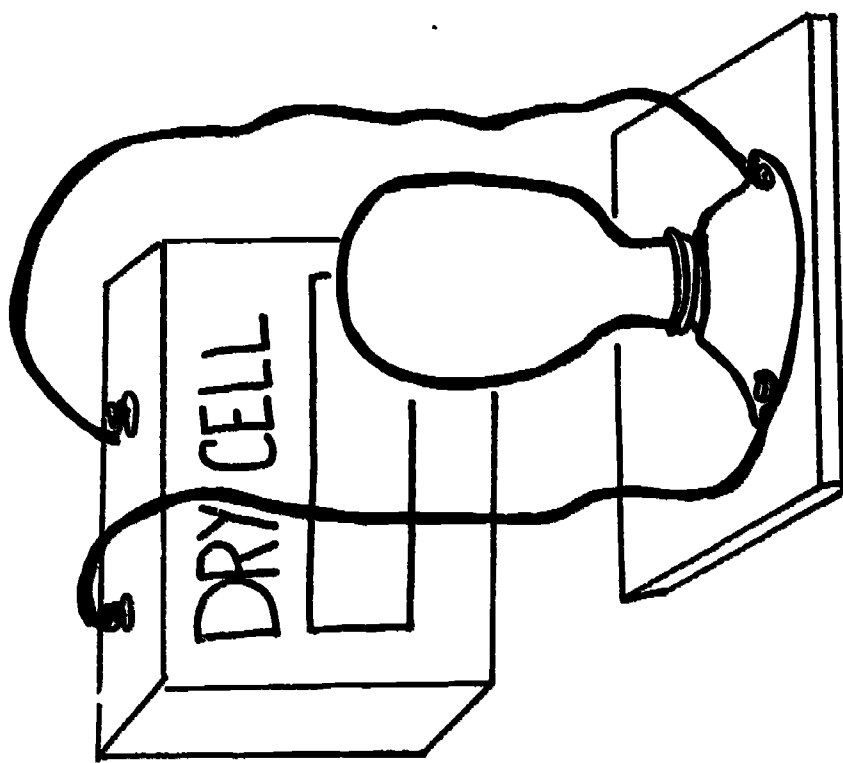
(Money)

- (2) Play a trading game in which one pupil asks for five pennies or one nickel. If the "cashier" gives the asker what he asked for, the "cashier" gets a point. If the "cashier" gives the wrong coins, the asker gets one point.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

# SCIENCE

## PART II



## INTRODUCTION

The Science section of the Guide is presented in subject-matter subsections. These subsections are: Human Body, Health, Animals, Plants, Weather and Climate, Safety, Environment, Earth and Space, and Technology.

Abilities appropriate to each subject-matter area are listed within each subsection. In the initial subsections, assessment activities are presented with each ability. The assessment activities are suggested ways to determine if the student has the associated ability. Since these assessment activities provide examples of the assessment technique, as well as examples of how to assess the specific ability, it is felt that the teacher will quickly develop her own assessment skills. Consequently, in the later subsections, only an occasional example is given.

Some abilities have been selected to provide the basis for Suggested Teaching Activities (STA). These, too, are suggestions, intended to provide the teacher with an example of how to teach the ability. Each STA is comprised of several activities, all related to the development of the ability. Seldom can an ability or suggested teaching activity be taught in one day. Each will take several lessons. The number of lessons for each ability or STA will be determined by the developmental level of the student. For the young student, a very rudimentary and simplistic understanding of the principles in the ability would be sufficient. For the older student, a more detailed and in depth understanding might be expected.

The teacher may find it necessary to adjust the wording, the pace, or the specific materials within any given assessment or STA in order to make the activity appropriate for the student's developmental level. Ways of making this adjustment are presented in the assessment activities.

Related programs, activities, and techniques will be found in the Teaching Resources column. The entries in the Teaching Resources column are designed to assist the teacher in either adapting the ability or an activity in the STA to her class level, or further developing certain ideas with that ability or activity.

Reinforcement activities are indicated in each STA. Many of these reinforcement activities will refer to a science notebook. It is recommended that each student keep a record of each science experiment that he performs. This record can be in pictures, words, or a combination of the two. The science notebook would serve as a place for that record.

The methodology of the Science section is based on three closely related assumptions. The first is that science and science concepts are best learned experientially by the learner discovering the concept through his own experience with it. The second is that a concept should be related first to the student, next to his immediate environs and finally to distant environs. The last assumption is that the teaching process of each science concept should be structured to afford the learner opportunities to experience the concept or principle, to make an observable application of the concept, and to establish the limits of the applicability of a conclusion.

The experiential or discovery approach to learning centers upon the student and gives the teacher an opportunity to assume the role of co-discoverer with the student. The teacher makes available to the student those materials and supplies which, by their presence, increase the probability of the student having the desired experience. The teacher can assist the student in the cognitive organization of that experience by asking well-timed and relevant questions. Such questions should assist the student in identifying objects and events, in making inferences, and in classifying information based upon the experience. Questions of this nature help the student develop a style of investigation essential to science learning.

Each science concept should be directed to the student as its primary focus of application and illustration. For example, if the concept is "the relationship of physical activity to rate of respiration," we recommend that the phenomenon be taught using the student as the primary source of experience. The student's rate of respiration should be examined. If the concept is "environmental pollution," then the student's immediate environment in the classroom should be the site for the investigation of pollution and its effects on the environment.

Once the student has grasped the concept as it relates to himself then he can be assisted in generalizing the concept to situations that are relevant to his experience. Using the concept previously outlined, the following area could be explored: the commonality in humans of respiratory rate and physical activity (varying degrees with people and activity); environmental pollution in other environments by other agencies. These and other topics will flow easily for the teacher who considers the student's experience as the focal point in his learning.

Mastery of an ability cannot always be assumed solely on the basis of a single correct performance of the assessment activity. The student will need to be observed applying the principle embodied in the ability before mastery can be assumed.

The writers of this guide see science instruction as a process in which the concept is made experiential for, with, and through the student. The student is given the freedom to apply the concept in a "laboratory" setting and is expected to evidence the general application of the science concept. This process of having real first-hand experience, controlled application, and developing generalizations should assist in making science a meaningful part of the student's life.

ABILITIES AND ASSESSMENTS

HUMAN BODY

1. To name the basic parts of the body.

Point to the child's (your) nose (eye, ear, etc.).

WHAT IS THIS CALLED?

2. To identify the functions of the basic parts of the body.

WHAT DOES YOUR (MY) NOSE (EYE, EAR, etc.) DO?

3. To measure and record his own height and weight.

Note: Use the following assessment activity to assess this ability in less mature children.

Cover a wall with several sheets of paper from a large roll of wide brown paper. Have each pupil stand against the wall, and make a heavy black mark above each child's head. Make a bar graph of the pupils' heights by having each child color in a column under the mark representing his height.

Have each child weigh himself, with as much assistance from you as is necessary.

I AM GIVING YOU A SQUARE (use one-inch squares) FOR EACH POUND YOU WEIGH. PASTE THE SQUARES IN A BUNCH BESIDE THE WIDE LINE YOU COLORED THAT IS AS TALL AS YOU ARE.

For children who can read and write their own names, have them do so near their height column and their weight "picture." For those who cannot read their own names, give the child a picture of himself and tell him to mount it beside the "pictures" of his height and weight.

Note: Use the following assessment activity when assessing children who are facile with numbers and can understand the relationship between the abstract symbols and their height and weight.

Provide a wall chart which has height markings on it. Have the students pair off. Each member of the pair will measure the height of his partner on the wall chart. Then each pupil will record his

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12	p40
	p20; 27a,b	p46
	p21; 34,35	
	p17; 4k	p40
		p46
	p18; 12	p77;4

## (Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>height on a chart on the bulletin board. The chart on the bulletin board will have the name of each child in the class with spaces beside each name for recording each pupil's height and weight.</p> <p>Have each pupil weigh himself and record his weight on the aforementioned chart on the classroom bulletin board.</p> <p>4. To identify physical characteristics of self, classmates, and others.</p> <p>TELL ME SOME THINGS ABOUT HOW YOU LOOK. (Elicit remarks about size, shape, eye color, etc.) TELL ME SOME THINGS ABOUT HOW _____ (name of a classmate) LOOKS. TELL ME SOME THINGS ABOUT HOW YOUR FATHER (YOUR MOTHER, YOUR TEACHER, THE CUSTODIAN, etc.) LOOKS.</p> <p>5. To identify similarities and differences in people: <u>size, shape, hair color, eyes, likes, dislikes, hobbies, etc.</u></p> <p>TELL ME SOME THINGS ABOUT HOW YOU AND _____ (name of classmate) LOOK ALIKE (LOOK DIFFERENT). TELL ME SOME THINGS THAT YOU LIKE (LIKE TO DO, DON'T LIKE TO DO) THAT ARE THE SAME AS _____ (name of classmate) LIKES (LIKES TO DO, DOESN'T LIKE TO DO). TELL ME SOME THINGS THAT YOU LIKE THAT ARE DIFFERENT FROM WHAT _____ (name of classmate) LIKES.</p> <p>Note: Teach only one concept (skill) at a time, using this format.</p> <p>6. To identify changes and rate of changes that people undergo as they get older: <u>height, weight, body changes, likes, interests, etc.</u></p> <p>Have the student draw a series of pictures of himself when a baoy, at age 2, at age 4 . . . , now . . . , at age 12, when a grown-up. Based on changes he shows in his pictures, question him about the changes as related to getting older. For example:</p> <p>YOU MADE YOURSELF TALLER IN THIS PICTURE THAN IN THIS PICTURE. WHY? HOW DO YOU KNOW YOU WILL LOOK LIKE THIS WHEN YOU ARE A GROWN-UP?</p> <p>TELL ME SOMETHING THAT YOU LIKE TO EAT. DID YOU EAT _____ (the same food) WHEN YOU WERE A BABY? WHY (WHY NOT)? WILL YOU EAT _____ (the same food) WHEN YOU GET BIG?</p>	<p>p17; 4k p20; 27a,b</p> <p>p17; 8k, l p18; 12</p>	<p>p40 p76; 2</p> <p>p40 p76; 2</p> <p>p40</p>
S 47		

(Abilities and assessments)

Similar questions can be asked for games he likes to play, clothes he wears, hobbies, etc.

Note: Teach only one concept at a time, using this format.

7. To identify what happens to food in the mouth.

Give the student an unsalted soda cracker.

HERE IS A SODA CRACKER. CAN YOU SWALLOW IT LIKE IT IS? PUT IT IN YOUR MOUTH. WHAT DOES IT TASTE LIKE? (Probable responses: dry, no taste, bitter, starchy.) WHAT PART OF YOUR MOUTH TELLS YOU THE TASTE? (Tongue.) CHEW THE CRACKER SLOWLY AND CAREFULLY AND THINK ABOUT WHAT IS HAPPENING TO IT. WHAT BREAKS THE CRACKER UP IN YOUR MOUTH? (Teeth.) DO NOT SWALLOW IT YET. HOW DOES THE CRACKER GET MOVED AROUND IN YOUR MOUTH? (Tongue.)

8. To infer that digestion begins in the mouth.

Give the student a cracker to chew.

CHEW THE CRACKER BUT DO NOT SWALLOW IT. WHAT DOES IT FEEL LIKE? YOU MAY SWALLOW IT NOW. WHY DO YOU THINK THAT IT FEELS DIFFERENT AFTER YOU CHEWED IT FROM THE WAY IT TASTED AT FIRST?

NOW TAKE THIS CRACKER AND SMASH IT UP WITH YOUR HANDS. AS SOON AS IT IS SMASHED TO LITTLE PIECES, PUT IT IN YOUR MOUTH. WHAT DOES IT TASTE LIKE? (Sweet, salty, not sweet.) PUSH THE BROKEN-UP CRACKER AROUND IN YOUR MOUTH UNTIL IT GETS ALL WET AND MUSHY. DOES IT TASTE DIFFERENTLY NOW? (Yes, sweet.) WHY DID THE TASTE OF THE CRACKER CHANGE? (Saliva mixed with the cracker and digestion began.)

9. To identify location of main parts of the digestive system and to state the function of each.

Provide a take-apart model of the human body. If necessary, use a school-made model or pictures showing the digestive system.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p17; 81 p18; 12	p60
	p18; 12	p60
	p27; 27b	
	p18; 12	p30 p40 p46 p60



## (Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>HERE IS A MODEL (PICTURE) OF A PERSON. IT SHOWS HIS INSIDES. ON THE MODEL SHOW ME WHERE THE MOUTH (ESOPHAGUS, STOMACH, INTESTINES, ANUS) IS. POINT TO YOURSELF TO SHOW ME WHERE THE MOUTH (STOMACH, etc.) IS. WHAT HAPPENS TO FOOD IN THE STOMACH (MOUTH, etc.)?</p> <p>For lower age-level, put cracker crumbs and a little water into a small plastic bag.</p> <p>MAKE BELIEVE THAT THIS IS YOUR STOMACH. SHOW ME WHAT HAPPENS TO THE FOOD IN YOUR STOMACH. (Expected response: student will manipulate bag to simulate churning of stomach.)</p> <p>10. <u>To identify method of removal of the body's major waste products: from the digestive system and from the respiratory system.</u></p> <p>Provide a take-apart model of the human body. If necessary use a school-made model or pictures which include human waste-emitting structures.</p> <p>HERE IS A MODEL (PICTURE) OF A PERSON. IT SHOWS HIS INSIDES. SHOW ME (TELL ME) WHERE FOOD THAT IS NOT DIGESTED, SOLID WASTES, GO AND HOW THEY GET OUT OF THE BODY. (Anus, defecation.)</p> <p>LOOK AT THE MODEL AGAIN. THIS TIME SHOW ME (TELL ME) HOW AND WHERE WATER THAT THE BODY IS FINISHED USING LEAVES THE BODY. (Urination, genital organ.) YOUR BODY LOSES WATER IN TWO OTHER WAYS ALSO. WHAT ARE THEY? (Perspiration and exhalation--breathing out.)</p> <p>LOOK AT THE MODEL AGAIN. THIS TIME LOOK AT THE PARTS OF THE BODY A PERSON BREATHE WITH AND WHERE THE AIR GOES. SHOW ME (TELL ME) WHERE AIR THAT HAS BEEN BREAHTHED IN GOES, WHEN A PERSON'S BODY HAS TAKEN THE PART IT CAN USE FROM THE AIR. (Exhalation from lungs to nose and/or mouth.)</p> <p>Note: For older students you may ask questions such as: WHAT DOES YOUR BODY DO WITH THE SOLID WASTES, LIQUID WASTE, AND AIR THAT IT NEEDS TO GET RID OF? HOW DOES YOUR BODY GET RID OF EACH OF THE ABOVE KINDS OF WASTES? (Defecation, urination, exhalation.)</p>	<p>p18; 12</p> <p>p46 p60</p> <p>S 49</p> <p>p19; 12</p> <p>p46</p> <p>pi9; 21j.k, 1</p>	
<p>11. <u>To recognize that air enters and leaves the body through the nose and mouth and that air goes to the lungs.</u></p> <p>PINCH YOUR NOSE TIGHT WITH ONE HAND. CLOSE YOUR MOUTH TIGHT. NOW BREATHE. (Expected response: I can't.) DO SOMETHING SO THAT YOU CAN BREATHE. WHAT DID YOU DO SO THAT YOU CAN BREATHE? PINCH YOUR</p>		



## (Abilities and assessments)

NOSE AND CLOSE YOUR MOUTH AGAIN. NOW DO SOMETHING DIFFERENT SO THAT YOU CAN BREATHE. WHAT DID YOU DO? WHY DID YOU OPEN YOUR MOUTH (LET GO YOUR NOSE)? (So air can get in.) WHAT PLACES CAN AIR GET INTO YOUR BODY?

Provide a model which shows the human respiratory system. If necessary, use a school-made model or pictures.

HERE IS A MODEL (PICTURE) OF A PERSON. SHOW ME WHERE AIR GETS INTO THE BODY. SHOW ME WHERE AIR GOES WHEN IT GETS INTO THE BODY. (Lungs.) WHAT DO YOU CALL THAT PART OF THE BODY? POINT TOWARD YOUR LUNGS.

12. To infer that animals and people need something from the air in order to live.

SUPPOSE A MOUSE GOT STUCK UNDERWATER IN A LAKE. WHAT WOULD HAPPEN TO IT? (It would die.) WHY WOULD IT DIE?

IF YOU WANT TO KEEP A(N) \_\_\_\_\_ (name of a familiar small animal) YOU COULD PUT IT IN A JAR. BUT YOU MUST PUNCH HOLES IN THE LID. WHY? (To let air in.) WHY DO YOU NEED TO LET AIR IN? WHAT WOULD HAPPEN IF YOU DID NOT LET AIR IN? (The animal would die.)

13. To describe the circulation of the blood.

Provide a take-apart model which shows the human blood circulatory system. If necessary, use a homemade model or picture.

HERE IS A MODEL (PICTURE) THAT SHOWS THE PATHS THAT THE BLOOD TRAVELS IN A PERSON'S BODY. SHOW ME WHAT THE HEART DOES TO THE BLOOD. SHOW ME WHERE THE BLOOD MOVES AROUND IN THE BODY, STARTING AT THE HEART. SHOW ME WHERE THE INTESTINES (LUNGS) ARE. WHAT DOES BLOOD DO WHEN IT IS NEAR THE INTESTINES (LUNGS)? (Picks up food, oxygen.) HOW DOES FOOD (OXYGEN) GET FROM THE INTESTINES (LUNGS) TO THE MUSCLES? (Carried by blood.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12	p46
	p20; 28c	
	p21; 34,35	
	p18; 12	

(Abilities and assessments)

14. To locate the position of the heart by listening and feeling and to locate major pulse points by feeling.

Have the student put his ear against another student's chest. If available, use a stethoscope. Then have him feel the pulse points at the same time his ear (stethoscope) is on the chest.

TELL ME WHAT YOU HEAR (FEEL ON THE CHEST). WHAT PART OF JOE'S (BETTY'S) BODY MAKES THAT SOUND? (Heart.) KEEP YOUR EAR ON JOE'S (BETTY'S) CHEST. WHAT IS THE HEART DOING WHEN IT MAKES THAT SOUND? (Moves, pumps, pushes blood.) KEEP YOUR EAR ON JOE'S CHEST. SHOW ME ANOTHER PLACE WHERE YOU CAN FEEL THE HEART BEAT. (Pulse points.) WHAT IS HAPPENING TO MAKE YOU FEEL THE HEART BEAT THERE?

15. To infer the function of one's heart.

YOU HAVE FELT AND HEARD THE HEART BEAT, AND YOU HAVE FELT THE BEAT OF THE PULSE. WHAT DOES THE HEART DO FOR YOUR BODY?

16. To associate expansion and contraction of the chest with respiration, and rate of breathing with exercise.

I AM GOING TO TELL YOU TO DO SOMETHING. WATCH YOUR CHEST WHILE YOU DO IT. NOW TAKE A DEEP BREATH AND HOLD IT. WHAT HAPPENED TO YOUR CHEST? NOW BLOW OUT AS MUCH AS YOU CAN AND HOLD IT. WHAT HAPPENED TO YOUR CHEST? TELL ME WHAT HAPPENS TO THE SIZE OF YOUR CHEST WHEN YOU BREATHE.

SIT STILL A MINUTE OR SO. BREATHE LIKE YOU USUALLY DO. NOTICE THE RATE (SPEED) OF YOUR BREATHING. NOW RUN UP THE STAIRS AND BACK DOWN (RUN TO THE END OF THE HALL AND BACK, etc.). WHAT HAS HAPPENED TO YOUR BREATHING? WHY ARE YOU BREATHING FASTER (HARDER) NOW? Alternatively, have another student do the running and have the student being assessed watch his breathing rate.

17. To recognize the major parts of the human skeleton.

Provide a model of a human skeleton. If necessary, use pictures.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 52		p46
S 54	p18; 12 p19; 21j,k, 1	p46
S 56	p18; 12 p21; 34,35	p29 p40 p46

(Abilities and assessments)

WHAT DOES THIS MODEL (PICTURE) SHOW US? (Probable response: skeleton.) WHAT DO WE CALL THE PARTS OF THE SKELETON? (Bones.) POINT TO A LEG BONE (ARMBONE, HAND BONE, etc.). (Point to major bones.) WHAT IS THIS BONE? (Expect only general responses such as foot bone, head bone.)

18. To name some of the functions of the human skeleton.

WHAT DO THE BONES DO? (Hold the body up, hold the body together, etc.)

19. To recognize that muscles shorten and bulge in moving one's body and in lifting or moving objects.

SHOW ME WHERE YOUR ARM MUSCLE IS. SHOW ME A MUSCLE IN ANOTHER PART OF YOUR ARM. (Have the student sit at a table with forearm on desk and palm of hand upward. Place a heavy book on his hand.) LIFT THE BOOK, BUT DON'T TAKE YOUR ELBOW OFF THE TABLE. WHAT DOES YOUR UPPER (LOWER) ARM MUSCLE DO WHEN YOU LIFT THE BOOK? (Shortens, bulges.)

20. To infer that exercise helps to develop strong muscles.

HOW DOES REGULAR EXERCISE CHANGE YOUR MUSCLES?

21. To identify the five senses.

WHAT ARE THE FIVE SENSES?

22. To recognize which senses provide what information about the environment.

Provide familiar odorless objects with which you can make sounds your pupils can readily identify. For example, ring a bell, slam a door, drop a book, and pluck a string of a guitar. Blindfold the student.

WHAT JUST HAPPENED? WHICH SENSE DID YOU USE TO KNOW THAT I RANG A BELL, SLAMMED A DOOR, DROPPED A BOOK, PLAYED MY GUITAR)? SO, WHAT KIND OF INFORMATION DOES YOUR SENSE OF HEARING PROVIDE YOU WITH?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 58	p18; 1	p40
	p19; 21j,k, 1	p46
	p18; 12	
	p18; 12 p20; 27b	p40 p46 p60
	p18; 12 p20; 27b	p40 p46

## (Abilities and assessments)

Provide bite-sized portions of foods easily differentiable by taste. For example, use chocolate bits and butterscotch bits, apple chunks and nectarine chunks, or a dab of catsup and a dab of applesauce. Blindfold the student.

HERE IS SOMETHING TO EAT. (Allow time for the pupil to chew and clear his mouth.) HERE IS ANOTHER THING TO EAT. (Again, allow time.) WERE THE FIRST AND SECOND THINGS THE SAME? WHICH SENSE DID YOU USE TO TELL IF THE THINGS I GAVE YOU WERE THE SAME OR DIFFERENT? SO, WHAT KINDS OF INFORMATION DOES YOUR SENSE OF TASTE PROVIDE YOU WITH?

Provide familiar noiseless and odorless objects which can be identified by the sense of touch. For example, use a ball, a fuzzy rug, a wooden block, a coin, and a tissue. Blindfold the student.

HERE IS A THING. HERE IS A SECOND THING. ARE THESE TWO THINGS THE SAME? HOW DO YOU KNOW THESE THINGS ARE DIFFERENT? WHICH SENSE DID YOU USE? SO, WHAT KIND OF INFORMATION DOES YOUR SENSE OF TOUCH PROVIDE YOU WITH?

Use familiar objects or substances which can be identified by odor. For example, present paste, soap, tobacco, onion. Blindfold the student. Place the above, or similar, items one at a time near the student's nose.

I AM HOLDING SOMETHING NEAR YOUR FACE. NOW I HAVE REMOVED THE FIRST THING AND I AM HOLDING ANOTHER THING NEAR YOUR FACE. ARE THE TWO THINGS THE SAME OR DIFFERENT? WHICH SENSE TOLD YOU THAT I HAVE PRESENTED YOU WITH TWO DIFFERENT THINGS? WHAT KIND OF INFORMATION DOES YOUR SENSE OF SMELL PROVIDE YOU WITH? (Odors, scents.)

Provide objects that are noiseless and odorless. For example, use a small toy, a pencil, a block, and a shoe. Place the objects one at a time before the child. Do not blindfold him, and do not allow him to touch any of the objects.

WERE ALL OF THE OBJECTS I JUST SHOWED YOU THE SAME? HOW DO YOU KNOW THEY ARE DIFFERENT THINGS? WHICH SENSE DID YOU USE? SO, WHAT KIND OF INFORMATION DOES YOUR SENSE OF SIGHT PROVIDE YOU WITH?

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>23. <u>To locate the brain and to infer some of its major functions.</u></p> <p>Provide a take-apart model which shows the human brain and nervous system. If necessary, use pictures.</p> <p>HERE IS A MODEL (PICTURE) OF A PERSON. SHOW ME (TELL ME) WHERE THE BRAIN IS. POINT TO YOURSELF TO SHOW ME WHERE YOUR BRAIN IS. WHAT PART OF YOUR BODY THINKS ABOUT WHAT YOU SEE? (Brain.) WHAT DOES YOUR BRAIN DO ABOUT THINGS YOU SMELL (TOUCH, TASTE, HEAR)? (Thinks about them, tells me what it is, etc.)</p> <p>MAKE YOUR ARM (FOOT, etc.) MOVE. SAY "NO" WITH YOUR HEAD. SHOW ME SOMETHING ELSE YOU CAN DO WITH YOUR BODY IF YOU THINK ABOUT IT. (Wiggle finger, bend over, etc.) WHAT PART OF YOUR BODY THINKS ABOUT HOW TO GET YOUR FINGER TO MOVE (BACK TO BEND, etc.)? SHOW ME ON THE MODEL WHERE THE MESSAGE TRAVELS FROM THE BRAIN TO YOUR HAND TO MOVE IT (TO YOUR TOE TO WIGGLE IT, etc.). (Follow route of nerves.)</p> <p>DO YOU THINK IN ORDER TO DIGEST YOUR FOOD (TO MAKE YOUR HEART BEAT, TO BREATHE, etc.)? WHAT TELLS YOUR BODY TO DIGEST (BREATHE, etc.)? TELL ME SOME OTHER THINGS YOUR BODY DOES THAT YOU DON'T NEED TO THINK ABOUT. (Circulate blood, heal a broken arm, etc.)</p>		<p>p17; 4k</p> <p>p18; 12</p> <p>p19; 21j, k, l</p> <p>p21; 34, 35</p>	<p>p40</p> <p>p46</p>
<p>24. <u>To locate the human nervous system.</u></p> <p>Provide a take-apart model which shows the human brain and nervous system. If necessary, use pictures.</p> <p>HERE IS A MODEL (PICTURE) OF A PERSON. SHOW ME WHERE SOME NERVES ARE. SHOW ME ON YOURSELF WHERE SOME NERVES ARE. (Elicit responses concerning linearity of nerves.)</p>		p18; 12	p46
<p>25. <u>To infer the function of the human nervous system in transmitting messages.</u></p> <p>Consider what the student being assessed would react to without fear or alarm, then do something to cause a reflex action in him. For example, prick his finger with a pin, cause a knee-jerk, blow a whistle, wave your hand before his eyes.</p> <p>WHY DID YOU JUMP (BACK UP, SAY "OUCH," etc.)? (Probably response: it hurt, it surprised me, etc.) HOW DID YOUR BODY KNOW THAT IT HURT (WAS SURPRISED, etc.)? (Possible response: my brain told me.)</p>	S 59	p18; 12	p81

(Abilities and assessments)

HOW DID THE MESSAGE GET FROM YOUR FINGER (KNEE, etc.) TO THE BRAIN? (By nerves.) Or, use other questions eliciting responses concerning transmission of messages to and from the brain via nerves.

26. To locate female reproductive organs and to describe their functions.

Provide a take-apart model of the human female. If necessary, use pictures.

HERE IS A MODEL (PICTURE) WHICH SHOWS THE INSIDES OF A WOMAN. SHOW ME WHERE THE PARTS ARE THAT HELP TO PRODUCE (MAKE) A BABY. (Expected response: points to general lower abdominal area.) IF assessee is a girl: POINT TO YOURSELF TO SHOW ME WHERE THE PARTS ARE THAT COULD HELP MAKE A BABY SOME DAY.

Point to the appropriate part of the model, as needed.

THESE PARTS ARE CALLED OVARIES. WHAT HAPPENS HERE TO HELP PRODUCE A BABY? (Eggs are produced.) HOW OFTEN ARE EGGS PRODUCED? (Approximately every four week.) THIS IS THE UTERUS. WHAT HAPPENS HERE TO HELP PRODUCE A BABY? (Expected response level depends on age of assessee.) similar questions about other reproductive organs, as befits the age of assessee.

Ask this series of questions only of older girls. WHAT HAPPENS TO AN EGG AFTER IT IS MATURED IN YOUR OVARY? (Travels down the Fallopian tubes.) SHOW ME ON THE MODEL WHERE IT GOES. WHERE IS THE UTERUS? WHAT IS IT FOR? (Place to develop baby.) POINT TO WHERE YOUR UTERUS IS. IF THE EGG DOESN'T STAY IN THE UTERUS TO BECOME A BABY, WHAT HAPPENS? (Menstruation.) WHY DOES MENSTRUATION HAPPEN? (Release of tissues from inside the uterus.) HOW SHOULD YOU TAKE CARE OF YOURSELF DURING YOUR MENSTRUAL PERIOD? (Elicit responses concerning how to contain the menstrual flow, protect clothing, stay comfortable, etc.)

27. To locate male reproductive organs and to describe their functions.

Provide a take-apart model of the human male. If necessary, use pictures.

HERE IS A MODEL (PICTURE) WHICH SHOWS THE INSIDES OF A MAN. SHOW ME WHERE THE PARTS ARE THAT HELP TO PRODUCE (MAKE) A BABY. (Expected response: points to general genital area.) IF assessee is a boy: POINT TO YOURSELF TO SHOW ME WHERE THE PARTS ARE THAT CAN HELP TO MAKE A BABY SOME DAY.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12 p21; 35	p4C p46
	p18; 12 p21; 34	p40 p46



## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>Point to the appropriate parts of the model, as needed.</p> <p>THESE ARE CALLED THE TESTICLES. WHAT DO THE TESTICLES MAKE THAT HELP TO PRODUCE A BABY? (Sperm.) WHAT DO THE SPERM DO? THIS IS THE SPERM TUBE. WHAT DOES IT DO? THIS IS THE PENIS. WHAT DOES IT DO TO HELP PRODUCE A BABY?</p> <p>28. <u>To state how pregnancy occurs, and to describe several methods of avoiding pregnancy.</u></p> <p>Provide a picture of a pregnant woman or use a take-apart model of a pregnant woman.</p> <p>THIS WOMAN IS GOING TO HAVE A BABY. HOW DOES A WOMAN GET PREGNANT? (Man deposits sperm in woman's vagina.)</p> <p>SUPPOSE THAT A WOMAN DOES NOT WANT TO BECOME PREGNANT. TELL ME SOMETHING THAT THE MAN OR THE WOMAN CAN DO SO THAT SHE WILL AVOID BECOMING PREGNANT (SO THAT SHE WILL NOT HAVE A BABY). (Expected response: any contraceptive method.) Ask other questions to elicit responses for alternative contraceptive methods.</p> <p>29. <u>To describe fetal development (conception through birth) and the typical physical and emotional changes of the mother during pregnancy.</u></p> <p>Provide a take-apart model of a pregnant woman. If necessary, use a picture.</p> <p>THIS WOMAN IS GOING TO HAVE A BABY. WHAT DO WE CALL THE PLACE WHERE THE BABY GROWS INSIDE THE WOMAN? (Uterus, womb.) TELL ME SOME OF THE CHANGES THE BABY MAKES WHILE IT IS INSIDE THE WOMAN. (Expected responses consistent with age of assessee.) HOW DOES THE BABY COME OUT OF ITS MOTHER? TELL ME HOW A WOMAN LOOKS WHEN SHE IS GOING TO HAVE A BABY. (Expected responses related to her abdominal shape.) HOW DO HER LOOKS CHANGE AS THE BABY GROWS INSIDE HER?</p> <p>TELL ME HOW YOU THINK A WOMAN FEELS WHEN SHE IS GOING TO HAVE A BABY. Expect responses concerning physical feeling. In addition, ask questions to elicit responses concerning such psychological aspects as happiness, joy, pleasure, worry about money to support the baby.</p>		<p>p18; 12 p21; 29b</p> <p>p18; 12</p>	<p>p46</p> <p>p46</p>

(Abilities and assessments)

30. To infer the contributions of heredity and environment upon the way a person looks and behaves.

DO YOU LOOK LIKE YOUR MOTHER (FATHER, SISTER, etc.)? (Adjust question so that it is appropriate for the student.) IN WHAT WAY DO YOU LOOK LIKE YOUR \_\_\_\_\_ (same person)? WHY DO YOU LOOK LIKE \_\_\_\_\_?

TELL ME SOME WAYS THAT YOU MAY ACT LIKE YOUR FATHER (MOTHER, BROTHER, etc.). (Adjust question to the student.)

HEALTH

1. To select examples of common foods of each major food group: meat-type foods, dairy foods, fruits and vegetables, and breads and cereals.

Provide models (or a set of pictures) of common foods. Have only one food per picture and have a preponderance of pictures of meat-type foods. Kinds of food shown should be easily identifiable and should look realistic. For example, use colored photographs cut from magazines. Display the set of pictures before the student.

LOOK AT THESE FOODS (OR PICTURES OF FOODS). PICK UP THE MEAT-TYPE FOOD (OR A PICTURE OF A MEAT-TYPE FOOD). PUT IT HERE. FIND ALL THE OTHER (PICTURES OF) MEAT-TYPE FOODS. PUT THEM HERE ALSO.

The same assessment activity can be repeated for each of the other food groups: dairy foods, fruits and vegetables, and bread and cereals.

2. To identify the main food groups: meat-type foods, dairy foods, fruits and vegetables, bread and cereals; to state a major function of each food group in the body; and to name the foods which must be eaten daily.

Provide models or sets of pictures of foods. Have meat-type foods in one set, fruits and vegetables in one set, etc. Show the student the picture of meat-type foods. Ask questions such as the following, adjusting questions to age and needs of student.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12	
	p19; 21j,k, 1	
	p17; 8c	p46
	p17; 8c,e, 9,j	p40 p46





## (Abilities and assessments)

WHAT GROUP OF FOODS IS SHOWN IN THIS MODEL (PICTURE)? WHY DO YOU NEED TO EAT MEAT? WHAT DO MEATS DO FOR YOUR BODY? HOW MUCH MEAT-TYPE FOOD SHOULD YOU EAT EVERY DAY (FOR BREAKFAST, FOR LUNCH, FOR DINNER)? WHY DO YOU NEED TO EAT MEAT-TYPE FOODS EVERY DAY?

The same assessment activity can be repeated for each of the other food groups: dairy foods, fruits and vegetables, and bread and cereals. If possible, use real foods, or empty cartons or cans.

3. To select food for a nutritious meal (breakfast, lunch, dinner, snack) and to describe how the foods selected help to keep the body healthy.

Provide a set of pictures of foods which could be eaten at breakfast. Have one food per picture, and have a preponderance of foods usually eaten at breakfast (eggs, cereal, toast, milk, orange juice, etc.). Also have pictures of other foods.

HERE ARE SOME PICTURES OF FOODS. PRETEND YOU ARE IN A CAFETERIA (RESTAURANT) AND THESE ARE THE FOODS ON THE COUNTER (MENU). PICK OUT FOODS WHICH SHOW A BREAKFAST YOU WOULD LIKE TO EAT. BE SURE TO PICK OUT A BREAKFAST THAT IS GOOD FOR YOU TO EAT. Allow him to select the breakfast. Then, as appropriate for his age, needs, and food selected, ask such questions as the following. WHY DID YOU PICK OUT EGGS (TOAST, MILK, etc.)? WHAT CAN (name of same food) DO IN YOUR BODY TO HELP YOU STAY HEALTHY? DO YOU HAVE ALL OF THE KINDS (GROUPS) OF FOOD THAT YOU NEED TO HAVE IN A MEAL? WHY DO YOU NEED TO EAT A GOOD BREAKFAST EVERY DAY?

Note: Any selection of foods that provides a balanced meal is permissible, even if it is unusual. For example, a breakfast of hot dog, milk shake, and an apple is nutritionally acceptable.

Use a procedure similar to that above for selecting food for a lunch or dinner.

Provide a set of pictures of foods which could be eaten as snacks. Have one food per picture. Be sure to include some nutritious foods (for example, nuts, cheese, carrot sticks, celery sticks, fruit, hot chocolate, peanut-butter sandwich); some sweets (for example, pastry, candy bar, cake); some commonly used snacks (for example, potato chips, pretzels, soda pop). Alternatively, use real foods instead of pictures.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 61	p17; 8b-d, 9,j	p40 p46

(Abilities and assessments)

HERE ARE SOME PICTURES OF FOODS THAT PEOPLE SOMETIMES EAT FOR SNACKS. SHOW ME SOMETHING THAT IS A GOOD SNACK TO HAVE AFTER SCHOOL (AT BEDTIME, etc.). Have him select several different snacks. Then, as appropriate for his age, needs, and snacks selected, ask such questions as the following:

WHAT KIND OF FOOD GROUP DOES YOUR CANDY BAR (POPCORN, APPLE, etc.) BELONG TO? WHAT DOES IT DO TO HELP YOU HAVE A HEALTHY BODY? If many sweets or foods with empty calories are chosen, ask questions such as these: WHAT DOES THIS KIND OF FOOD DO FOR YOU? (Elicit response indicating that they provide quick energy.) WHAT WILL HAPPEN TO YOU IF YOU EAT TOO MUCH OF THIS KIND OF FOOD?

4. To recognize foods containing relatively large proportions of water.

Provide a set of pictures of foods. Have only one food per picture, and have a preponderance of foods containing large proportions of water. For example, for foods containing large proportions of water, use pictures of a glass of water, milk, juice, soft drinks, jello, fruit, melons. Other pictures should be of relatively dry foods such as dry cereal, bread, macaroni, rice. Alternatively, and ideally, provide real foods.

LOOK AT THESE (PICTURES OF) FOODS. PICK UP SOMETHING TO DRINK THAT HAS A LOT OF WATER. PUT IT HERE. PICK UP OTHER FOODS THAT HAVE A LOT OF WATER. PUT THEM THERE ALSO.

5. To describe the function of water in the body.

WHAT ARE SOME WAYS YOUR BODY GETS RID OF WATER? (Urination, perspiration, exhalation.) WHAT DOES YOUR BODY GET RID OF WITH THE WATER? (Wastes, dissolved in water.) WHY DO YOU NEED TO HAVE WATER IN YOUR BODY? (To help get rid of wastes.) HOW DOES YOUR BODY GET THE WATER IT NEEDS? (Drinking water and other liquids, eating foods containing water.)

6. To recognize that routine proper brushing and flossing of the teeth will prevent tooth decay.

Provide a clean toothbrush, toothpaste (or toothpowder or baking soda) and dental floss. Take the student to a place where he can actually brush his teeth.

HERE IS A TOOTHBRUSH AND SOME TOOTHPASTE (TOOTHPOWDER, SODA). SHOW ME HOW YOU BRUSH YOUR TEETH. WHAT COULD YOU DO TO DO A BETTER JOB OF BRUSHING? WHEN DO (SHOULD) YOU BRUSH YOUR TEETH? HERE IS

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 64	p19; 21j.k, 1	p46
		p40 p46
	p17; 8j	p46

(Abilities and assessments)

SOME DENTAL FLOSS; SHOW ME HOW YOU USE IT (SHOULD USE IT) TO HELP KEEP YOUR TEETH CLEAN. WHY SHOULD YOU USE THE FLOSS EVEN IF YOU HAVE BRUSHED YOUR TEETH? HOW OFTEN SHOULD YOU USE THE FLOSS?

7. To differentiate between foods that are more likely to promote tooth decay and foods that are less likely to promote tooth decay.

WHAT FOODS DO YOU EAT TO HELP YOU HAVE GOOD TEETH? WHAT OTHER FOODS SHOULD YOU EAT TO HELP YOU HAVE GOOD TEETH?

8. To take one's temperature and to determine whether it is normal, subnormal, or indicates a fever.  
Provide an oral fever thermometer.

HERE IS A THERMOMETER; TAKE YOUR OWN TEMPERATURE. IS YOUR TEMPERATURE WHAT IT SHOULD BE? WHAT TEMPERATURE WOULD INDICATE THAT YOU HAVE A FEVER?

9. To recognize the symptoms of the common cold.

Note: It is best to conduct this assessment activity during or shortly after a "cold epidemic" in the classroom, or after at least one student has had a cold.

TOM (AND MARY, AND JOHN, AND YOU, etc.) HAD A COLD ON MONDAY. WHY DID WE THINK HE HAD A COLD? HOW DID HE ACT? (Sneezed, coughed, was tired, had a runny nose, etc.)

10. To name some things to do to keep from getting a cold and to name some things to do to keep from giving the cold to other people.

Note: It is best to conduct this assessment activity during or shortly after a "cold epidemic" in the classroom, or after at least one student has had a cold.

WHAT CAN YOU DO TO KEEP FROM GETTING A COLD? (Get plenty of rest, eat properly, stay away from people with a cold, etc.) WHAT CAN YOU DO TO KEEP FROM GIVING YOUR COLD TO SOMEONE ELSE? (Stay away from them, cover your mouth when sneezing, etc.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 65	p17; 8j	p40
		p46
		p31
		p75; 1
		p81
		p40
		p81

## (Abilities and assessments)

11. To state the usual treatment for a common cold.

Note: It is best to conduct this assessment activity during or shortly after a "cold epidemic" in the classroom, or after at least one student has had a cold

SUPPOSE YOU CAUGHT A COLD. WHAT SHOULD YOU DO TO HELP YOU GET BETTER? (Stay home, rest, drink liquids, take aspirin.)

12. To name some common ways to minimize illness, and to practice these ways of avoiding illness.

TELL ME SOME THINGS YOU DO TO HELP YOU KEEP FROM GETTING SICK. (Appropriate responses: get plenty of sleep, eat a balanced diet, keep clean [esp., keep hands well washed], stay away from people who are sick.)

Observe the pupil over a period of time for evidence that he is practicing these health habits.

13. To infer that one should seek medical attention if there are symptoms of common childhood diseases or other symptoms that are severe or long-lasting.

WHAT SHOULD YOU DO IF YOU THINK YOU MIGHT HAVE CAUGHT CHICKEN POX (MEASLES, MUMPS, OR OTHER CHILDHOOD DISEASE)? (See a doctor, medic, etc.) WHAT WOULD MAKE YOU THINK THAT YOU MIGHT HAVE CHICKEN POX (MEASLES, MUMPS, etc.)? (Rash, red spots, swollen jaw, had been near someone with the disease, etc.)

Ask questions similar to the following, using any common symptoms of illness: stomachache, fatigue, not feeling well, fever, headache, rash, swollen areas, sore areas, sore throat, itching, etc.

SUPPOSE YOU GOT A LITTLE STOMACHACHE. WHAT SHOULD YOU DO? (Rest, eat carefully, etc.) IF YOUR LITTLE STOMACHACHE WENT AWAY IN TWO HOURS, WHAT SHOULD YOU DO? (Nothing further.) IF YOUR LITTLE STOMACHACHE LASTED FOR MORE THAN TWO OR THREE DAYS, WHAT SHOULD YOU DO? (Call a doctor, medic, etc.) SUPPOSE YOU SUDDENLY GOT A VERY BAD STOMACHACHE THAT LASTED FOR SEVERAL MINUTES AND RECURRED OFTEN AND/OR BECAME CONTINUOUS FOR AN HOUR WHAT SHOULD YOU DO? (Call a doctor, medic, etc. right away.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 67		p61
		p40
		p81
		p81

(Abilities and assessments)14. To predict which kinds of situations would require medical attention.

Ask questions similar to the following, using common potentially serious situations such as, deeply cut fingers, bumped head, stubbed toe, rapid or long-lasting bleeding, auto-accident injury, swallowed substance that might be poisonous, burns.

SUPPOSE YOU GOT A LITTLE CUT ON YOUR FINGER. WHAT SHOULD YOU DO? (Wash well, use adhesive aid, etc.) SUPPOSE YOU GOT A BAD CUT ON YOUR ARM. WHAT SHOULD YOU DO? (Call doctor, medic, etc.)

15. To recognize and differentiate nonprescription medicines, prescription drugs, and inoculations, and to state the purpose of each.

Display some empty nonprescription medicine containers, or pictures showing such medicines. WHERE WOULD YOU GET THESE MEDICINES? (Drug store, etc.) WHY WOULD YOU TAKE THEM? (To help get well from an illness.) DO YOU NEED ANYTHING SPECIAL TO BUY THEM? DO THEY HELP YOU?

Display prescription drug containers or pictures showing such containers. Ask same questions as above. Display a simulated physician's prescription. WHAT IS THIS? HOW DO YOU GET IT? WHAT DO YOU USE IT FOR? WHY DO YOU NEED TO HAVE THIS PIECE OF PAPER TO BUY SOME KINDS OF MEDICINE?

Display a picture of a person getting an inoculation, or role-play the situation with you as a doctor and student as a patient. THIS MAN IS (YOU ARE) GETTING A VACCINATION FOR SMALLPOX (or use name of other disease, as appropriate in your location). WHAT DOES THE VACCINATION DO FOR HIM (YOU)? WHAT IS THE DIFFERENCE BETWEEN A VACCINATION AND OTHER KINDS OF MEDICINE?

16. To identify some dangers of cigarette smoking.

Provide an empty cigarette package having the surgeon general's warning. Have the student read the warning aloud, or read it to him.

WHAT MIGHT SMOKING DO THAT IS BAD FOR YOUR HEALTH? (Elicit responses for short-term effects, such as cough and blood-pressure effects, and for long-term effects such as lung cancer and heart disease.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 9,10	p81
		p81
	p18; 12	p40 p46

## (Abilities and assessments)

17. To recognize the importance of regular exercise for good health.

SHOW ME SOMETHING THAT YOU DO WHICH IS EXERCISE. (Runs, does calisthenics, etc.) SHOW ME (TELL ME) SOMETHING ELSE YOU COULD DO WHICH IS EXERCISE. (Swim, ride a bike, etc.) WHY DO YOU EXERCISE? WHY SHOULD YOU DO SOME EXERCISE EVERY DAY?

18. To identify some signs of good health and to identify factors contributing to a person's good health and healthy growth.

DO YOU THINK THAT YOU HAVE GOOD HEALTH? WHAT ARE SOME THINGS THAT TELL YOU THAT YOU DO NOT HAVE GOOD HEALTH? WHAT ARE SOME THINGS THAT TELL YOU THAT YOU HAVE GOOD HEALTH? WHAT ARE SOME OTHER SIGNS OF GOOD HEALTH? For the last two questions, elicit a large number of appropriate responses: feel well physically and mentally, look good, no aches and pains, have pep, etc.

TELL ME SOME THINGS YOU CAN DO TO HELP KEEP YOURSELF HEALTHY AND TO GROW UP HEALTHY. (Expected responses: statements about good food, cleanliness, rest, exercise, etc.)

19. To practice (daily) routine necessary for keeping clean and healthy and for maintaining a balanced diet.

Observe the student over a period of time, watching for evidence of cleanliness, sufficient rest, proper nutrition, etc.

ANIMALS1. To recognize as pets those animals which are usually kept as pets; to recognize as farm animals those animals which are often domesticated; to recognize most other animals as wild animals; and to give examples in each category.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12,15 p21; 29a	p81
	p18; 12 p19; 21j,k, 1	p40
	p17; 8i p18; 12	p81
	p17; 4i	p29 p40



(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>2. <u>To classify characteristics of animals which distinguish animals from nonliving things.</u></p> <p>Present several animals, or pictures of animals, and several inanimate objects.</p> <p>IS THIS AN ANIMAL? HOW DO YOU KNOW THAT IT IS (IS NOT) AN ANIMAL? After many such questions, ask: IN WHAT WAY (WAY'S) ARE ALL ANIMALS ALIKE?</p>	5 69	p18; 12, 16a p20; 27b	p40 p46
<p>3. <u>To designate general needs of all animals (food, water, shelter). To give examples of specific needs of a particular animal and state how the needs are supplied.</u></p> <p>WHAT THINGS DO ALL ANIMALS NEED IN ORDER TO LIVE? (Response should indicate food, water, shelter.)</p> <p>Take a field trip to the zoo. Point out a specific animal. Ask questions such as the following to elicit responses concerning this animal's needs. Repeat the procedure for many animals.</p> <p>WHAT DOES THIS _____ (name of animal) EAT? (Meat, seeds, grass, worms, milk, etc.) HOW DOES THE _____ (name of animal) GET _____ (name of food) TO EAT? HOW DOES THE _____ (name of animal) GET WATER TO DRINK? WHAT KIND OF SHELTER DOES THIS _____ (name of animal) LIKE (NEED, etc.)? HOW DOES THE _____ (name of animal) GET ITS _____ (NEST, DEN, TUNNEL, etc.)?</p>		p17; 8a p18; 13,14 p18; 16a	p40 p81
<p>4. <u>To recognize that a particular animal belongs to the group of mammals (or birds, or reptiles, or fish, or insects); and to give examples of animals which are mammals (or birds, reptiles, fish, insects).</u></p> <p>When possible, present real animals (classroom pets, animals seen from the classroom, animals seen on a field trip to a farm or zoo, etc.). Alternatively, use photographs of animals. As appropriate for the situation and age level of the student, ask questions such as the following:</p> <p>IS THIS ANIMAL A MAMMAL (BIRD, etc.)? IS THIS ANIMAL A MAMMAL OR A BIRD (BIRD OR A FISH, etc.)? WHAT GROUP OF ANIMALS DOES THIS ANIMAL BELONG TO?</p> <p>Provide photographs of several animals, one kind of animal per photograph.</p>		p17; 4i,j, o,p	p40 p46

## (Abilities and assessments)

HERE ARE SOME PICTURES OF ANIMALS. FIND A PICTURE OF A MAMMAL (BIRD, etc.). WHAT IS THAT ANIMAL CALLED? (Appropriate response is an acceptable name for the animal.) FIND (TELL ME ABOUT) ANOTHER ANIMAL WHICH IS A MAMMAL (BIRD, etc.).

5. To discriminate characteristics of one major animal group from another group.

Provide real animals, if possible. Alternatively, provide photographs of animals. Present the younger student with pictures of two animals, each from a different group (mammal and bird, fish and insect, etc.). An older student may be presented more pictures at one time (two mammals and two birds, three birds and two fish, etc.).

HERE IS A PICTURE OF A MAMMAL. HERE IS A PICTURE OF A BIRD. SHOW ME (TELL ME) SOME WAYS THAT THE MAMMAL AND BIRD ARE NOT ALIKE (ARE DIFFERENT). Accept any logical responses, based on the pictures presented. For example, the mammal has four legs, the bird has two; the mammal has a nose, the bird has a beak.

6. To discriminate characteristics of mammals (or birds, or reptiles, or fish, or insects)

Provide pictures of animals. Present pictures of two animals from the same group (dog and horse, parakeet and robin, fly and grasshopper, etc.). Alternatively, use pairs of real animals.

HERE IS A PICTURE OF A DOG (PARAKEET, FLY, etc.) AND A PICTURE OF A HORSE (ROBIN, GRASSHOPPER, etc.). TELL ME HOW THE DOG (PARAKEET, FLY, etc.) IS NOT THE SAME AS (IS DIFFERENT FROM) THE HORSE (ROBIN, GRASSHOPPER, etc.).

7. To classify animals within a major animal group (mammals, birds, reptiles, fish, insects).

Provide several photographs of mammals (or birds, or reptiles, or fish, or insects). Present the younger student with two pictures at one time; an older student may be presented three or more pictures at one time.

HERE ARE TWO (THREE, etc.) PICTURES OF MAMMALS (BIRDS, etc.). SHOW ME (TELL ME) SOME WAYS THAT THESE ANIMALS ARE ALIKE. Accept any logical response based on the pictures presented. For example, if presented pictures of mammals, the student might say that both have four legs, both have fur,

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p40 p46
		p46
		p46



## (Abilities and assessments)

both have a tail, etc. Or, if presented pictures of birds, the student might say that both have a head, both have a beak, both have two eyes, both have two feet, etc. Younger students may not need to know the terms mammal and reptile.

8. To relate some things that man does for pets, farm animals, and wild animals; and to describe some things these animals do for man.

Designate a particular animal or kind of animal to the student (for example, his dog, other dogs, pets). Ask questions such as the following.

WHAT DO YOU DO TO HELP YOUR DOG LIVE? WHAT DO WE DO FOR DOGS (PETS)? WHAT DOES YOUR DOG DO FOR YOU? WHAT DO DOGS (PETS) DO FOR MAN? Concerning man's use to the animal, accept responses having to do with man's providing care, protection, food, shelter, conservation, etc., as appropriate for the particular animal. Concerning the animals' uses to man, accept as responses ideas such as the following: Pets provide us with love, companionship, protection, amusement, etc. Farm animals provide food, work, recreation, etc. Wild animals provide beauty, food sometimes, links in the food chain, etc. For wild animals, especially, elicit responses concerning the animals' helpfulness or harmfulness to man, and vice versa.

9. To describe some things that man does for birds (or reptiles or fish), and to describe some things that these animals do for man.

The assessment can be similar to that suggested for #8 above concerning the interrelationship of man and pets, domestic animals, and wild animals.

10. To identify some insects which are helpful to man and some which are harmful; to describe the need for control of insects and to name some methods of controlling them.

11. To describe methods of reproduction for each major animal group, and for specific animals within any group.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 71		p40 p81
		p40
		p40 p46

(Abilities and assessments)

12. To describe ways that animals need and use plants, and to describe ways that plants need and benefit from animals.
13. To describe some general ways in which animals adapt (adjust) to their environments; and to give specific examples  
This ability can be assessed from time to time, as occasions arise. Ask questions such as the following, as appropriate for a situation observed by you or the student.  
WHY DID THE SPIDER MAKE HIS WEB HERE AND NOT OVER THERE? WHY WAS IT A GOOD IDEA FOR THE BIRD TO BUILD HIS NEST ON THAT BRANCH? WHY DID THE INSECT LAY ITS EGGS ON THAT LEAF? WHAT KIND OF CHANGES DID THIS ANIMAL MAKE TO FIT INTO HIS SURROUNDINGS BETTER?
14. To describe some things that animals, in general, do for the earth, and to give some specific examples.
15. To be aware of the need for conservation of wildlife and to name some things that an individual can do to help conserve animal wildlife.  
TELL ME WHAT YOU ARE DOING TO HELP SAVE WILDLIFE. WHAT CAN OTHER PEOPLE DO TO HELP SAVE WILDLIFE? Alternatively, name a specific animal, especially if there is an animal in your area or in the current news which is an endangered species, or otherwise threatened.
16. To exhibit appropriate behavior when in the vicinity of animals.

PLANTS

1. To distinguish plants from animals and nonliving things, and to identify some common plants.  
Point to objects, one at a time, in the classroom and outdoors. Include animals, plants, and inanimate objects.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 13,14	p40
	p21; 30,32, 33	p46
	p16; 4a	p40
	p18; 12-14	p46
	p17; 8a	p40 p46
	p18; 12	
	p19; 19	
		p81
	p20; 27b	p46

(Abilities and assessments)

IS THIS A PLANT? Alternatively, request the student to point out plants: SHOW ME SOME THINGS THAT ARE PLANTS.

For identification purposes, ask the younger student to point to a tree, a house plant, a vegetable, a rose or other common flower, etc., or ask him to name plants you indicate. An older student can be expected to make finer discriminations, such as giving common names for house plants or local trees and flowers.

2. To recognize some similarities among all plants.
3. To recognize some similarities among plants in a given group.
4. To recognize some differences between two plants not of the same species.
5. To recognize the major parts of plants (leaves, stem, roots, flowers) and to infer the function of each part.  
Provide live plants (house plants, seeds sprouted in the classroom, trees in the schoolyard, etc.). Give the student a plant or indicate one outdoors.  
HERE IS A GERANIUM (or other name) PLANT. SHOW ME A LEAF (THE ROOTS, etc.). WHAT DO THE LEAVES (ROOTS, etc.) DO FOR THE PLANT? Alternatively, point to a leaf (root, etc.). WHAT IS THIS PART OF THE PLANT? WHAT DOES THE \_\_\_\_\_ (name of the part) DO FOR THE PLANT?
6. To describe the general needs of most plants (air, water, food, heat, and light).
7. To infer that when plants reproduce, they produce other plants of the same kind; and to name some methods of plant reproduction.

Provide seeds of plants which are available in the classroom or nearby.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 73	p20; 27b	p46
	p20; 27b	p46
		p46
		p46
S 73	p17; 6	p40
	p18; 11	p46
	p18; 11 p20; 28a,b, d	p46

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
THESE SEEDS WERE MADE BY THAT TREE (PLANT, BUSH, etc.). SUPPOSE THAT WE PLANTED THE SEEDS. SHOW ME THE KIND OF THING THEY WOULD GROW INTO.		p21; 28e,30	
TELL ME ONE WAY THAT WE CAN MAKE A NEW PLANT LIKE THIS ONE (ONE WAY THAT THIS PLANT MAKES A NEW PLANT). Responses could include reference to use of seeds, roots, bulbs, stems, slips. Ask for a description of the procedure he mentions. Preferably, ask for a demonstration, if appropriate for the situation.	S 76	p18; 11 p20; 28a p21; 30	
8. <u>To distinguish between seeds and non-seed objects and to identify the purpose of seeds,</u>  Provide several samples of rather common seeds (bean, corn, radish, tomato, watermelon, etc.), some common small non-seed objects (marbles, metal shot, small macaroni, oatmeal, bits of cardboard, etc.), and a set of seeds and small non-seed objects that may be unfamiliar to the student (rice, weed seeds, metal shavings, bits of styrofoam, etc.).  SOME OF THESE THINGS ARE SEEDS. SOME ARE NOT SEEDS. SEPARATE THE SEEDS FROM THE OTHER THINGS. PUT THE SEEDS HERE. PUT THE THINGS THAT ARE NOT SEEDS HERE. PL: THE THINGS THAT YOU ARE NOT SURE ABOUT HERE. For an older student, have labels ready. WHAT COULD THIS SEED DO? (Grow into a plant.) WHAT KIND OF A PLANT WILL IT MAKE?			
9. <u>To provide conditions and care necessary for healthy plant life.</u>  Assign the assessee a job of "taking care of" a certain plant or group of plants in the classroom, in the schoolyard, or in a school garden. Observe him over an extended period of time to watch for indications of proper care. When appropriate, ask questions concerning why he is doing a particular thing, what should he do next, etc., to elicit responses concerning his knowledge of proper care of plants.		p18; 11 p20; 28a p21; 30	
10. <u>To identify some plants used by man and to state how man uses each.</u>  Point to a tree or other plant, or show a picture of the plant. Ask questions such as the following, as appropriate for the situation.	S 78		p40 p46

(Abilities and assessments)

WHAT DOES THE TREE DO FOR US NOW? (Shade, beauty, fruit or nuts for food, water retention, etc.. WHAT COULD THE TREE DO FOR US IF WE CUT IT DOWN? (Fuel, lumber for shelter, etc.) IS THE (name of plant) HELPFUL (HARMFUL) TO US? TELL ME HOW IT IS HELPFUL (HARMFUL).

11. To identify some agricultural plants (farm crops, truck garden plants, flower garden plants) and to describe the use made of each.

12. To describe the needs for conserving plant life of the world, and to name some things that an individual can do to help conserve plant life.

Following are some types of questions which the student can be asked to assess his knowledge of conservation needs and practices. The questions should not be asked all at one time; this assessment is an ongoing process.

CAN WE USE ALL THE TREES (GRASS, VEGETABLES, FRUIT TREES, WILD BUSHES, etc.) THAT WE WANT TO? WHAT COULD HAPPEN IF WE USED UP ALL THE \_\_\_\_\_ (name of type of plant)? WHY DO WE NEED TO TAKE GOOD CARE OF \_\_\_\_\_ (name of plant or group of plants)? WHAT DO YOU DO TO HELP SAVE TREES (GRASS, etc.)? IS THERE ANYTHING ELSE THAT YOU COULD DO? WHAT CAN \_\_\_\_\_ (name of a group of people) DO TO HELP SAVE \_\_\_\_\_ (type of plant or group of plants)? WHAT DO PLANTS DO FOR THE EARTH? (Hold water, hold soil, make oxygen, manufacture food which animals and man use, etc.)

13. To exhibit appropriate behavior regarding the conservation of plant life.

WEATHER AND CLIMATE

1. To evaluate approximate temperatures and to apply an appropriate description (hot, warm, cool, cold) to the temperature condition of air or of substances.

For the younger students, ask questions such as the following: IS IT WARM OR HOT OUTDOORS TODAY? IS THE DRINKING WATER WARM OR COOL? DOES THE DOORKNOB FEEL COOL OR COLD? Older students can be expected to use these words appropriately in conversation. Listen for evidence of proper use.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p40 p46 p40 p46
	p17; 7 p19; 21a,b, c p20; 27b	p81  p46

## (Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 80	p17; 7	p46
	p19; 21a,b, c	
	p20; 27b	
	p16; 4b	p46
	p19; 21a,b, c	
	p20; 25	

2. To be aware that a thermometer measures temperature and to read outdoor and indoor thermometers.

Provide thermometers used to measure temperature outdoors, and household thermometers. Younger students should probably be expected to read only the vertical type, containing liquid in a tube. Older students might be expected to read dial-type thermometers also.

WHAT DO YOU CALL THIS? WHAT DO WE USE IT FOR? WHAT IS THE TEMPERATURE TODAY IN THE CLASSROOM? TAKE THIS THERMOMETER OUTDOORS AND FIND OUT WHAT THE TEMPERATURE IS.

Note: You could arrange to have him read different temperatures in one assessment activity by having him check outdoor temperatures in the shade, in the sun, etc. Indoor temperatures can be checked in a sunny window, in a darker part of the room, in a refrigerator, etc. Be sure he waits a few minutes after placing the thermometer in a new location before he reads it.

3. To compare outdoor air temperatures at different times throughout the day; to keep a record of outdoor temperatures; and to associate characteristic temperatures with each season.

Place a thermometer in a convenient location outdoors where it can remain permanently. Have the student read the thermometer three or four times a day at the same time every day (early morning, noon, and late afternoon, or at three or four other convenient times) for several days. Have the younger child show his readings on a bar graph, adding to it each day. An older student could construct a line graph, adding to it each day. The older student should have intervals between readings properly spaced for the elapsed hours.

If there are seasonal temperature differences in your area, ask questions such as the following to determine the student's knowledge of approximate temperature to expect in different seasons.

WHAT SEASON IS IT NOW? WHAT TEMPERATURE DO YOU EXPECT THAT WE WILL USUALLY HAVE? (Expected response for a younger student may be only cold, cool, warm, or hot. An older student could give a numerical range of temperatures.) WHAT SEASON WILL BE NEXT? WHAT TEMPERATURES WILL WE HAVE THEN?



(Abilities and assessments)

4. To recognize common weather conditions (sunny, cloudy, stormy, windy, rainy, snowy, etc.), and to use appropriate basic vocabulary when communicating information regarding common weather conditions.

Note: The assessment of this ability should take place over a period of weeks. Ask the student frequently about the prevailing weather conditions. Notice, in particular, whether he tells you or other students about the weather without being asked.

5. To observe that weather changes frequently, and to describe some causes of weather and weather changes.
6. To identify some basic characteristics of air (has weight, pushes on things, has no color, is made up of tiny particles, the particles are always moving, air in motion makes wind, etc.), and to name the important constituents of air (oxygen, other gases, water vapor, pollutants).
7. To describe how clouds form, to recognize different types of clouds, and to associate cloud formations with weather conditions.
8. To distinguish among the various types of precipitation to relate outdoor temperature with type of precipitation and to explain how and why precipitation occurs.
- On days when precipitation is occurring, ask the student about the weather and why it is doing what it is doing. Younger students may be expected to distinguish only between rain and snow (if appropriate for your area). Older children could make finer discriminations (snow, sleet, freezing rain, downpour, drizzle, etc.).
9. To describe the stages in the water cycle, and causes of the water cycle.

Present the student with one of the frequently seen water cycle drawings (showing land, vegetation, body of water, sunshine, clouds, rain, and arrows indicating direction of moisture flow). Ask him to tell you about the picture. The older student might be expected to describe a less complete drawing, or even to make his own sketch showing the water cycle.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 4b p19; 21a,b, c	
	p19; 21a,b, c	
	p19; 21a,b, c	p40 p46
	p16; 4b p19; 21a,b, c	
	p19; 21a,b, c	p40 p46

## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
<p>When occasions arise, ask the student to tell about applications of portions of the water cycle to a prevailing situation (during precipitation; during sunshine, especially if it is also a humid day; when near a body of water on a field trip; when there are clouds; etc.).</p> <p>10. <u>To relate outdoor air temperatures and weather conditions with clothing needs, shelter needs, recreational interests, occupations; to describe some ways in which weather affects people.</u></p> <p>Provide a set of pictures showing obvious outdoor conditions (sunshiny summer day, sunsh'ny winter day, rainy fall day, etc.); a set of pictures of children; a set of pictures of articles of clothing; a set of pictures of activities that might be related to weather (camping, indoor game, bicycling, swimming, sledding, etc.); a set of pictures of shelters (houses of different types); and a set of pictures showing occupations which might be influenced by the temperature (construction workers, office workers, snow shoveling, etc.). Show the student one weather condition picture, one child picture, and an assortment of clothing pictures.</p> <p>THIS BOY (GIRL) WANTS TO GO OUTDOORS ON A DAY LIKE THIS. (Indicate weather condition picture.) HERE ARE SOME KINDS OF CLOTHING. DRESS THE BOY 'GIRL' IN THE KIND OF CLOTHING THAT WOULD BE BEST TO WEAR.</p> <p>Similar assessment activities for other portions of the ability can be carried out using other combinations of the pictures provided.</p>			p46 p81
11. <u>To describe some ways in which weather affects plants and animals and some ways in which plants and animals adapt to the weather.</u>		p16; 4a p18; 16a	p40 p46
12. <u>To define "climate," to distinguish between weather and climate, and to discuss climatic conditions in some parts of the world.</u>			
13. <u>To associate climatic conditions with clothing needs, shelter needs, crops grown, occupations, plant life, animal life, etc.; and to describe some ways in which people, plants, and animals adapt to the climate.</u>		p16; 1,2,3 p18; 16a,b p19; 21j,k, 1	p46



(Abilities and assessments)

14. To interpret simple weather forecasts, and to associate the forecast with planned activities and with the ensuing weather.

SAFETY

1. To predict that objects or substances which are hot, likely to be hot, or are being heated can cause burns if they are touched.

Provide several cooking pans (metal handles and insulated handles) and electrical appliances (toaster, iron, hot plate, skillet, etc.). With the student observing, arrange a situation so that some appliances and pans become hot and some are left cold. For example, to produce hot devices, put water in metal-handled pan, place on stove or hot plate, and turn on the latter; plug in the toaster; plug in the iron. For cold devices, leave some appliances obviously not plugged in and/or turned on; leave pan of soup off stove; place pan of milk on stove but do not turn stove on.

WHAT COULD HAPPEN IF YOU TOUCHED THE \_\_\_\_\_ (name of hot device or portion of it) NOW? WHY?  
WHAT COULD HAPPEN IF YOU TOUCHED THE \_\_\_\_\_ (name of cold device or portion of it) NOW? WHY?  
(Indicate hot [cold] liquid in pan.) WHAT COULD HAPPEN IF YOU PUT YOUR FINGER INTO (SPILLED ON YOUR ARM) THE WATER (SOUP) IN THIS PAN? WHY? (Pour hot [cold] soup [milk, etc.] into bowl or cup.)  
WOULD IT BE SAFE TO EAT (DRINK) THIS SOUP (MILK, etc.) RIGHT NOW? WHY?

2. To predict that sharp-edged and pointed objects can cause wounds and bleeding, and to demonstrate proper handling of broken objects.

Provide a flat box containing several large and small pieces of broken glass. Have a broom, dust pan, and other common cleaning items available.

SUPPOSE YOU ACCIDENTALLY DROPPED A BOTTLE AND IT MADE A MESS LIKE THIS ON THE FLOOR. WHAT COULD HAPPEN IF YOU LEFT THE PIECES ON THE FLOOR? WHAT COULD HAPPEN IF YOU TRIED TO PICK UP THE PIECES WITH YOUR FINGERS? SHOW ME HOW YOU COULD CLEAN UP THE PIECES SAFELY.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p81
	p18; 9	p81
S 83	p18; 9	p81

## (Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
3. <u>To use electrical outlets and appliances properly.</u> Provide a 110V appliance (razor, iron, etc.); a 220V appliance (toaster, skillet, etc.); a transformer to convert 110V current to 220V current.  SHOW ME HOW TO PLUG IN THIS RAZOR (TOASTER, etc.) SO THAT YOU COULD USE IT HERE. WOULD YOU PLUG IT IN THE SAME WAY AT YOUR HOME. Accept as responses any combination of appliance and transformer which will work with the electrical service available.		p16; 4c p17; 5	p81
4. <u>To identify some common materials as being combustible or explosive and to demonstrate some precautions in handling such materials.</u> Ask the pupil questions about the combustibility and explosiveness of common materials. Adjust questions to age and interests of the student. For example, a younger student can be asked about playing with matches, and an older student can be asked about reasons for NO SMOKING signs at the gas station.		p18; 16e	p40 p81
5. <u>To predict that injury or death can result from accidents involving moving vehicles.</u>			
6. <u>To predict that overexposure to sunshine can cause sunburn and perhaps illness.</u> It would be best to conduct this assessment on a warm or hot sunny day.  IT IS NICE OUTDOORS TODAY. IT WOULD BE FUN TO PLAY (SIT, LIE) IN THE SUNSHINE. WHAT HARM MIGHT THERE BE IF YOU PLAYED (SAT, LAY) IN THE SUNSHINE FOR _____ (specify some lengthy period of time e.g., three hours, as appropriate for the occasion and the student)? Elicit responses concerning sunburn and possible resulting illness. WHAT WOULD IT BE LIKE TO BE SUNBURNED?	S 85	p18; 9	
7. <u>To recognize that some common materials can be dangerous or poisonous (for example, medicines, detergents, household chemicals, garden chemicals, automotive chemicals), and to demonstrate ways of storing these materials properly.</u>  Provide an assortment of empty containers, some of which once contained materials which could be dangerous or poisonous (medicine bottles, detergent boxes, laundry bottles, paint cans, insecticide		p18; 9	p8;

(Abilities and assessments)

spray cans, oil cans, etc.). If necessary, use pictures of such items. Sources of such pictures might include advertisements from magazines or newspapers. Present one set of packages or pictures at a time to the student.

WHICH OF THESE DO YOU NEED TO STORE IN ANY SPECIAL PLACE? WHY (WHY NOT)? SHOW ME (TELL ME) A GOOD PLACE TO PUT THE \_\_\_\_\_ (name of item) IF YOU WERE NOT GOING TO USE IT RIGHT AWAY.

8. To identify the dangers of examining or repairing gas or electrical appliances without disconnecting them from the source of energy.
9. To identify dangers of uninsulated or broken electrical wires (for example, one can get a shock, the wires could start a fire), and to state what to do about broken wires (for example, report to appropriate person).
10. To recognize the odor of gas leaking from a stove or heater, and to state what to do about such an odor.
11. To name safety precautions one should take in severe weather conditions (thunderstorms, rainstorms, snowstorms, strong winds, icing), and to demonstrate such safety measures when the need arises.
12. To follow fire evacuation procedures efficiently and safely.  
Watch the student during a routine fire drill of the school and note whether he follows the appropriate procedures. If necessary, arrange to have a fire drill at the school. Alternatively, have your room of students practice the fire drill so that you can observe in detail the actions of one or two students at a time.
13. To demonstrate proficiency in the application of safety measures in the classroom, on the playground, as a pedestrian, etc.

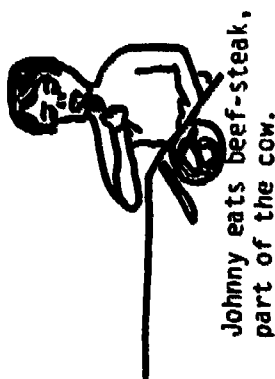
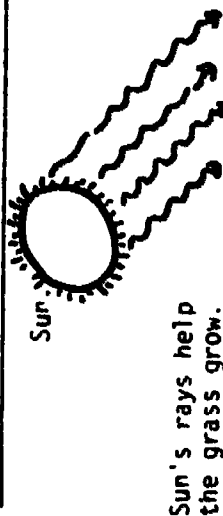
Observe the student in many situations for evidences of safety-oriented behavior. Reminder: this

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 4c	p46
	p17; 5	p46 p81
	p18; 9	p81
S 87	p18; 9	p81

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>will need to be done over an extended period of time. You may wish to keep a record of the pupil's safety-oriented behavior.</p> <p><u>ENVIRONMENT</u></p> <ol style="list-style-type: none"><li>1. <u>To identify features of one's environment (immediate, neighborhood, region, nation, world).</u> Ask the student to name some things in his surroundings. Accept any logical response. The very young child might be expected to notice only the things in the schoolroom or home. The student who is a bit older could identify things in the neighborhood. An older student should be able to identify features in the community and region, while the oldest students should be aware that the whole world is our environment.</li><li>2. <u>To recognize examples of controlling the immediate environment (housing, heating, air conditioning, lighting, etc.), and to recognize or cite other examples of environmental control (park development, stream diversion, reforestation, weather control, etc.).</u></li><li>3. <u>To recognize how living things have affected or can affect the environment.</u> Question the student about any features or events in the local area which concern living things changing the environment (a spider spinning a web, a dog digging a hole, a man planting trees, a flower blooming, a tree shedding leaves in the fall, a construction crew building a road, etc.). In particular, emphasize occasions where man is creating or destroying an environment of beauty and usefulness. Similarly, question the student about how the environment can affect living things (a plant left in a dark corner, a pet caged in too small an area, seeds put out for bird food, a sudden storm, moving furniture in the schoolroom to new locations, etc.). In particular, focus on effects of environmental changes on man and his behavior.</li><li>4. <u>To describe a complete food chain, e.g.</u></li></ol>	p18; 16b p19; 19 p20; 23	p40 p46
	p18; 17 p19; 19	
	p16; 4a p18; 17	
	p17; 8a,h p18; 16e	p46

## (Abilities and assessments)



5. To identify a source of and describe the dangers of solid-waste pollution.

Question the pupil about solid wastes or litter, adapting the questions to your local situation. Questions such as the following may apply.

TELL ME ABOUT THE LITTER YOU SAW ON YOUR WAY TO SCHOOL TODAY. WHERE DID THE LITTER COME FROM? WHAT THINGS ARE LYING AROUND ON THE SCHOOLGROUND (IN THE SCHOOL HALLWAYS, etc.) THAT SHOULD NOT BE THERE? HOW DID THOSE THINGS GET THERE? WHAT IS THAT BIG PILE OF STUFF AT THE EDGE OF THE CITY? HOW DID IT GET THERE? Be sure to elicit responses concerning himself as a possible source of litter. WHAT ARE THE DANGERS IN HAVING LITTER IN THE STREETS (IN THE PARKS, IN EMPTY SPACES, etc.)? (Destroys beauty, may be sharp objects, may carry germs, etc.).

Alternatively, have the student draw a picture of a park (the schoolyard, a sidewalk, a street, etc.). Then have him draw a picture of the same area after it had been littered. Then ask questions such as the following.

HOW WOULD LITTER GET IN THE PARK? WHO PUTS IT THERE? WHY DON'T WE LIKE TO HAVE LITTER AROUND?

6. To recognize air as part of the environment.

7. To identify some common air pollutants and to infer some of the effects of air pollution on the environment.

NAME SOME THINGS THAT MAKE OUR AIR DIRTY. (Automobile exhaust, chimney smoke, soot, etc.) TELL ME SOME THINGS THAT MIGHT HAPPEN TO YOU WHEN THE AIR GETS TOO DIRTY (e.g., coughing, shortness of breath, dirty clothes, eyes hurting, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
S 89	p19; 22	
	p19; 19	p81
S 91	p17; 4h, 6, 7 p19; 21j p20; 23	
	p19; 19 p18; 12	p40 p46

## (Abilities and assessments)

TEACHER TIPS			
Suggested Activities	Teaching Resources	Teaching Strategies	
S 93	p17; 4h,6,7 p19; 21 p18; 12	p40 p46	
8. <u>To recognize water as part of the environment.</u>			
9. <u>To identify some common water pollutants and some of the effects of water pollution on the environment.</u> IS THE WATER IN THE RIVER (LAKE, etc.) SAFE TO DRINK? WHAT CAN YOU SEE IN (NEAR) THE WATER (RIVER, LAKE, etc.) THAT MAKES YOU THINK THAT THE WATER IS NOT SAFE TO DRINK (IS NOT CLEAN, IS POLLUTED)? ARE THERE HARMFUL THINGS IN THE WATER THAT WE CANNOT SEE? WHAT ARE THOSE THINGS? WHERE DO ALL OF THE POLLUTANTS (BAD THINGS, HARMFUL THINGS) IN THE WATER COME FROM? WHO PUTS THEM IN THE RIVER (LAKE, etc.)? WHAT ARE SOME DANGERS ABOUT HAVING POLLUTED WATER?			
10. <u>To distinguish between biodegradable and nonbiodegradable wastes and to predict some long- and short-term dangers of each.</u> Have the student bring in bits of litter from the area. Have him draw pictures or make models of other waste materials. Have the litter, pictures, and models placed into two piles: "things that will break down in nature," and "things that will not break down in nature." TELL ME (POINT TO) SOME THINGS THAT BREAK DOWN IN NATURE AFTER AWHILE (paper, wood, food, leaves, and other organic materials). TELL ME (POINT TO) SOME THINGS THAT DO NOT BREAK DOWN IN NATURE (plastics, aluminum cans, old tires, and most inorganic materials). Indicate one of the piles of wastes. TELL ME SOME DANGERS OF HAVING THESE THINGS IN OUR SURROUNDINGS NOW. TELL ME SOME DANGERS OF HAVING THESE THINGS IN OUR SURROUNDINGS IF WE LEAVE THEM FOR A LONG TIME. Repeat for other piles of wastes.		p40 p46	
11. <u>To describe noise pollution.</u>		p81	
12. <u>To identify methods of avoiding and eliminating pollution in the school, home, community.</u> WHAT DID YOU DO YESTERDAY (TODAY) TO MAKE YOUR SURROUNDINGS A CLEANER PLACE TO LIVE IN? Accept responses indicating proper immediate care of materials and wastes (e.g., threw candy-wrapper in wastebasket, as well as evidence of cleaning up litter already present). WHAT CAN YOU DO NOW TO MAKE YOUR SURROUNDINGS CLEANER? Alternatively, have the student draw pictures showing an area before and after he has cleaned it.	p17; 4m p20; 23	p40 p46	



Ability and assessments

13. To be aware of the benefits of recycling materials and to describe how both organic and inorganic materials are recycled.
14. To describe the need for conservation of the land's nonrenewable resources (soil, rocks, minerals, land area).
15. To describe the need for conservation of renewable natural resources (wildlife, forests).
16. To identify some current problems concerning protection and improvement of the immediate environment.  
Listen to the student as he talks in the classroom or with other students. Notice instances of his applying his "classroom knowledge" to any current events involving his environment. It may be helpful to keep a written record of such instances since this ability needs to be assessed over a period of time.  
Stimulate classroom discussions with articles from newspapers (subscribe to your home-town paper if necessary) about pollution. Evaluate how effectively the child applies his knowledge of conservation and pollution to specific situations.
17. To integrate conservation practices into his life's activities.

This ability must be assessed over a period of time. Observe the student's daily activities for evidences of wise use of resources and materials (water, electricity, paper, school materials, etc.) nonlittering, attempts to clean up litter, protection of plants and animals, etc. It may be helpful to keep a written record concerning the student's action in conservation practices.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 12, 13, 14 p19; 19 p16; 4d p19; 19 p21; 30 p17; 4h p19; 19	p46    p40
	p18; 12 p19; 19	p81

## (Abilities and assessments)

EARTH AND SPACE

1. To recognize some of the major components of the earth's surface (soil rocks, minerals, water, ice) and to describe those components.

Many of the earth's components can be seen while on a walking field trip near the school. Ask the student questions such as the following while on such a field trip.

SHOW ME SOME SOIL (A ROCK etc.) FROM THE EARTH. HOW DO YOU KNOW THAT IT IS SOIL (A ROCK, etc.)? (Elicit responses to show that he knows some characteristics by which he distinguishes rocks from any other thing.)

If a field trip is impractical, or if some components cannot be seen near the school, provide samples of several components (soil; several kinds of rocks; different minerals, especially any mined in your area; etc.).

HERE ARE SOME THINGS THAT HELP TO MAKE UP THE EARTH. SHOW ME A ROCK. HOW DO YOU KNOW THAT IT IS A ROCK? (Elicit responses to show that he knows some characteristics by which he distinguishes rocks from any other thing.) SHOW ME ANOTHER ROCK. (Ask similar questions for other earth components.)

2. To recognize some of the major types of land surfaces of the earth (mountains, hills, flat lands, deserts, ice, etc.), and to describe these surface features.

Provide pictures of types of land surfaces, preferably photographs, showing one feature predominant in each picture.

HERE ARE SOME PICTURES OF DIFFERENT KINDS OF LAND ON THE EARTH. POINT TO THE PICTURE OF MOUNTAINS. TELL ME ABOUT MOUNTAINS; WHAT ARE THEY LIKE? (Similar questions can be asked concerning other surface features. When possible, instead of pictures, indicate features in your area.)

3. To identify the major sources of water on the earth (oceans, lakes, streams).

WHERE DID THIS WATER COME FROM? WHERE DID IT COME FROM BEFORE THAT? (Elicit responses to follow water back to streams, lakes, oceans, and finally to the water cycle [see ability #9 in Heather and Climate subsection].)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p17; 4h p18; 16b p19; 21,a,b c p21; 30	p46
	p17; 4h p18; 16b	p40
S 96	p17; 4h p18; 16b	p40



## (Abilities and assessments)

4. To state the general properties of water (including comparison of the three states).

Present a container of water and two or three empty containers of approximately the same volume.

TELL ME ABOUT WATER. WHAT COLOR IS IT? DOES WATER WEIGH ANYTHING? WHAT DOES WATER FEEL LIKE? HOW DOES WATER BECOME DIFFERENT WHEN WE POUR IT FROM THIS CAN (JAR, etc.) TO THIS JAR (BOTTLE, etc.)? (Takes shape of new container.) PUT YOUR FINGER (HAND) IN THE WATER, TELL ME ABOUT THE TEMPERATURE OF THE WATER. (Probable response: warm or cold.) WHAT WOULD HAPPEN TO THE WATER IF WE PUT IT IN A VERY COLD PLACE? WHAT COULD HAPPEN TO THE WATER IF WE PUT IT IN A PAN ON THE STOVE?

Present ice cubes or pieces of ice in a small pan. (Have pupil feel or hold ice.)

WHAT IS THIS? WHAT WOULD HAPPEN IF WE LET THE PAN SIT ON THE TABLE FOR AWHILE? (Ice melts.) WHAT DOES THE ICE CHANGE INTO WHEN IT MELTS? (Water.) CAN WE CHANGE THE WATER BACK INTO ICE? HOW? ARE ICE AND WATER THE SAME THING? WHAT WOULD HAPPEN IF WE PUT THE PAN OF WATER ON THE STOVE (HOT PLATE) FOR A FEW MINUTES? (Water boils.) WHEN THE WATER BOILS, WHAT DOES IT CHANGE INTO? (Steam, water vap., etc.) CAN WE CHANGE STEAM (WATER VAPOR) BACK INTO WATER? HOW? ARE WATER AND STEAM THE SAME THING? ARE STEAM AND WATER AND ICE THE SAME THING?

5. To describe the location of the atmosphere and to identify some major characteristics of the atmosphere.

WHERE IS THE AIR? (Elicit: all around the earth.) HOW HIGH DOES THE AIR GO? (Several miles.) IS THE AIR THE SAME ALL THE WAY TO THE TOP? (Gets less dense with distance from earth, etc.) WHERE IS THE WEATHER? (Lower atmosphere.) AIR GIVES US OXYGEN TO BREATHE, WHAT ELSE DOES AIR DO? (Protects us from the sun and from dangerous rays from space, etc.)

6. To name some properties of the sun (i.e., big, gaseous, etc.), and to be aware of its location in space with respect to the earth.

Note: Some of your pupils may not understand this concept readily. Do not spend weeks trying to teach it to all. Teach it to those who can comprehend it readily.

TELL ME ABOUT THE SUN. IS IT AS BIG AS THE EARTH? (Elicit responses indicating that the sun is much larger than the earth.) IF THE SUN IS SO BIG, WHY DOES IT LOOK SO LITTLE? (It is very far away.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 16b p19; 19,22	p40
	p19; 21a,b, c	p46
	p19; 21a,b, c	p40 p46

## (Abilities and assessments)

WHY DO WE GET HOT WHEN WE ARE IN THE SUN? (The sun is very hot.) WHAT IS THE SUN MADE OF? (Accept any responses indicating that the sun is made of very hot or burning gases or other materials.)

Provide a small ball and a large ball, preferably a beach ball.

PRETEND THAT THIS LITTLE BALL IS THE EARTH, PRETEND THAT THIS BIG BALL IS THE SUN. LET'S SAY THAT THE EARTH IS HERE. SHOW ME WHERE THE SUN IS. (Accept any response that indicates a great distance compared to the size of the models.)

7. To identify some things that the sun does for earth and man (supplies energy, heat, and light; helps plants grow; etc.).

8. To state major properties of the moon (cold, smaller than earth, shines by reflected light, etc.): to be aware of its relationship in space with respect to the earth and sun, and to give some reasons for man's interest in the moon.

TELL ME ABOUT THE MOON. HOW BIG IS THE MOON? (Elicit responses indicating that the moon is somewhat smaller than the earth.) WHAT IS THE MOON MADE OF? (Accept any responses consistent with current information.) IS THE MOON HOT LIKE THE SUN? IF THE MOON IS NOT HOT AND BRIGHT, WHAT MAKES THE MOON SHINE? (Sun's light is reflected from the moon.)

Provide a marble or spherical bead, a small ball, and a large ball, preferably a beach ball.

PRETEND THAT THIS BALL IS THE EARTH. PRETEND THAT THIS MARBLE IS THE MOON AND THAT THIS BIG BALL IS THE SUN. LET'S SAY THAT THE EARTH IS HERE. SHOW ME WHERE THE MOON IS. SHOW ME WHERE THE SUN IS. (Accept any responses indicating that the moon is quite close to the earth and that the sun is a great distance away.)

WHY DID THE UNITED STATES (AND ANY OTHER COUNTRY) SEND MEN TO THE MOON? TELL ME ABOUT MEN ON THE MOON. WHAT DID SCIENTISTS FIND OUT ABOUT THE MOON? (For last two questions, accept any responses consistent with current available information.)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 1,2,3 p18; 16e p19; 22	p46
	p16; 4e p18; 16f	

(Abilities and assessments)

	TEACHER TIPS		
	Suggested Activities	Teaching Resources	Teaching Strategies
9. To identify objects in space (Milky Way, stars, planets, comets, etc.); to state the main characteristics of such objects (especially size and temperature), and to be aware of the location of these objects with respect to the earth.		p16; 4f p18; 16f	
WHAT ARE THE TINY SPOTS THAT WE SEE IN THE SKY AT NIGHT? (Probable response: stars.) TELL ME ABOUT A STAR (Very big, may be bigger than the sun, very hot, etc.) WHY DOES THE STAR LOOK SO TINY? (Is far away.) The older student may be able to give some indication of distance in miles or by telling how long it would take to travel to a star. Similar questions can be asked about other objects in the sky, although the younger student should probably be expected to know only that they are stars.			
10. To explain what causes day and night.		p19; 22	
Provide a small world globe and a lamp or light bulb. Set the lamp where it can shine on the globe. The student should be able to move the globe as he wishes. Darken the room, except for the lighted lamp.			
PRETEND THAT THIS LAMP (LIGHT BULB) IS THE SUN SHINING FROM A LONG WAY AWAY. HERE IS A GLOBE OF THE WORLD. SHOW ME WHERE WE ARE ON THE GLOBE. PUT THE GLOBE IN THE RIGHT PLACE SO THAT IT IS DAYLIGHT WHERE WE ARE. NOW PUT THE GLOBE IN THE RIGHT PLACE SO THAT IT IS NIGHT WHERE WE ARE. SHOW ME HOW IT CHANGES FROM DAY TO NIGHT WHERE WE ARE. NOW SHOW ME HOW IT CHANGES FROM NIGHT TO DAY. For the younger student, accept any responses indicating that it is daytime where the sun shines, night when the sun doesn't shine, and that rotation of the earth produces night and day. An older student may be able to show correct eastward rotation and appropriate tilting of the earth.			
11. To explain what causes the seasons and to explain some changes that occur with seasonal change (temperature, length of daylight, weather).	S 98	p16; 3 p17; 4g p19; 22	
The younger student could be expected to describe some changes that occur with seasonal changes. An older student could be expected to explain causes of the seasons. Use the apparatus described in the assessment for ability #10. Ask the student to move the earth in its revolution around the sun while rotating and tilting the earth for the spring, summer, fall, and winter seasons.			

(Abilities and assessments)

12. To describe some uses that man makes of the earth's natural materials (soil, minerals, rocks, oil, etc.), and to discriminate between wise use and careless use of these natural resources.

Select a few resources to consider in the assessment, preferably resources from your area. Have the student bring in samples of resources or provide the samples.

HERE IS SOME COAL (GRAVEL, IRON ORE, LEAD ORE, LIMESTONE, CRUDE OIL, SOIL, etc.). WHERE DID IT COME FROM? HOW DO WE GET IT FROM THE EARTH? TELL ME HOW WE USE THIS COAL (GRAVEL, etc.). IS THIS A GOOD USE FOR THE COAL (GRAVEL, etc.)? COULD WE GET THE COAL (GRAVEL, etc.) OUT OF THE EARTH MORE CAREFULLY? DO WE NEED TO SAVE COAL (GRAVEL, etc.) AS MUCH AS WE CAN? WHY? COULD WE USE COAL (GRAVEL, etc.) MORE CAREFULLY? HOW?

13. To be aware of past, current, and planned space-exploration projects (astronauts orbiting the earth, travel to the moon, unmanned space flights, interplanetary flights, etc.), and to state some reasons for and benefits of space exploration (to find out about the earth, other planets, and space; technological benefits to mankind, etc.).

### TECHNOLOGY

Note: In view of the impact of technology upon personal daily life, STA's that relate to the abilities will be found in the Personal-Social and Orientation to the World of Work sections of this guide.

1. To identify some common ways of producing heat (burning, electricity flowing through a wire, friction).  
 SUPPOSE YOU WANTED TO GET WARMER NOW. WHAT COULD YOU DO? The student is likely to give a response indicating that he would turn up the heat or go to a warmer spot. From this, ask questions to lead him back to a more basic source of heat, probably burning or sunshine. A series of such questions could be: WHERE DOES THE HEAT IN THE RADIATOR COME FROM? (Hot air.) WHERE DOES THE HOT AIR COME FROM? (Furnace.) WHAT MAKES HOT AIR IN THE FURNACE? (Coal, oil, gas, or wood burning.) Before or during this sequence, a short visit to the school's heating plant may be worthwhile, especially for the older student.

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p16; 4d p19; 19	p40 p46
	p16; 4e,f p19; 19,22	p46 p8i
	p16; 4c p17; 5 p18; 16e p19; 21g,h, 1	p40 p46

(Abilities and assessments)

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
<p>BESIDES BURNING A FUEL, WHAT ARE SOME OTHER THINGS THAT PRODUCE HEAT? Elicit responses to indicate electricity going through a wire (coils on a stove or toaster, etc.), friction (rubbing his hands together, rubbing some object hard on a rug or on his clothing, etc.), sunshine, etc.</p> <p>2. <u>To recognize some ways that man uses heat energy.</u></p> <p>SHOW ME (TELL ME) SOME WAYS THAT WE USE HEAT. An appropriate response would be for the student to indicate any appliances (devices) in the room which produce heat. In addition, he might be expected to name uses such as cooking food, heating buildings, heating water, drying clothes, etc.</p> <p>3. <u>To recognize various fuels (coal, wood, oil, etc.), and to demonstrate the conditions needed for burning to occur (fuel, air, enough heat to start the burning).</u></p> <p>4. <u>To identify some methods of controlling the production of heat (that is, obtaining enough for needs and restricting excess production).</u></p> <p>5. <u>To identify some possible dangers in the use of heat energy (waste of fuel, unwanted fires, thermal pollution, etc.).</u></p> <p>6. <u>To identify some ways that electricity is produced (generator, battery, etc.).</u></p> <p>7. <u>To recognize some ways that man uses electrical energy (to produce heat and light, to run motors in appliances, etc.).</u></p> <p>8. <u>To name some methods of controlling the production (make only what is needed, etc.) and use (turn off unneeded lights and appliances, proper insulation, etc.) of electricity.</u></p>	<p>p18; 16e</p> <p>p18; 16e</p> <p>p16; 4c</p> <p>p16; 4c p17; 5</p> <p>p19; 21d,e, f</p>	<p>p81</p> <p>p40 p46</p> <p>p40 p46</p> <p>p40 p46</p> <p>p40</p> <p>p46</p> <p>p81</p>

## (Abilities and assessments)

9. To identify some possible dangers in the use of electrical energy (waste of fuel, starting fires, electrical shock, etc.).
10. To identify some ways that light can be produced (sunlight, burning, electricity flowing through a wire, etc.).
11. To recognize some ways that we use light energy.
12. To select adequate lighting (sunlight, lamp, lamp bulbs, etc.) to use when working on a particular task.
13. To identify some ways that sound can be produced (vibrating string, vocal cords, blowing air through a horn, etc.).
14. To recognize some ways that man uses sound energy (speech, music, sonic finders in fishing, sonic treatments, etc.).
15. To identify some dangers in using sound-producing devices improperly (damage hearing capability, annoying to others, etc.).
16. To recognize some ways that man uses mechanical energy or motion (transportation, appliances to do work, etc.).
17. To identify some possible dangers in the use of mechanical energy (injury from moving parts, unwise fueling practices, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p17; 5	p40 p46 p81
	p19; 21d,e, f	p81
		p46
		p46
	p19; 21d,e, f	p46
		p81
		p40 p46 p81
	p18; 16d,e	p40 p81
	p18; 9	p40 p81



(Abilities and assessments)

18. To infer that energy can be changed from one form to another and to demonstrate such conversions in familiar situations.

Demonstrate instances of conversion of energy from one form to another. Ask the student questions to lead him to the generalization that energy can be converted from one form to another. For example, turn a light on at the switch and ask questions such as these: WHAT HAPPENED WHEN I PUSHED THE BUTTON? (Light went on.) WHAT HAPPENED TO MAKE THE LIGHT GO ON? (Electricity went through the lamp.) THEN ELECTRICITY CHANGED TO WHAT KIND OF ENERGY? (Light.) WHAT KIND OF ENERGY HAS CHANGED INTO LIGHT? (Electrical energy.) This kind of procedure can be carried out for other examples of energy conversions: electrical energy into heat (stove, toaster, hot plate, small heater, etc.), electrical energy into motion (vacuum cleaner, electric razor, electric toothbrush, electric shoe polisher, etc.), mechanical energy (motion) into heat (production of friction), motion into sound (pluck string of a musical instrument, pluck a stretched rubber band, hit a drum head, etc.). Then ask the student to show or tell you of some more examples of changing one form of energy into another form.

19. To infer that the sun is the ultimate source of all energy used on earth.

20. To describe automation, to give some examples of automated activities (operations).

For the younger student, ask questions such as the following. TELL ME ABOUT (SHOW ME) SOME THINGS THAT WORK AUTOMATICALLY. This student is most likely to give simple examples. In particular, elicit responses concerning local examples of automatic operations (a door opening when one approaches it, flush toilet, vending machine, washing machine, clothes dryer, etc.).

Ask the older student to tell you what automation is. Any response is acceptable if it indicates that automation is an activity or operation which is controlled automatically. SHOW ME (TELL ME ABOUT) SOME EXAMPLES OF AUTOMATION. This student might be expected to know of more complicated activities and operations (juke box, car wash, factory production operations, road or building construction operations, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
	p18; 16d,e	p46
	p19; 22	p46
		p40

Abilities and assessments

21. To name some good and bad effects of automation.

Ask the younger student questions such as the following. WHY IS IT GOOD TO HAVE THINGS THAT WORK AUTOMATICALLY? (Makes work easier for us, attendants not needed, etc.). WHY IS IT BAD TO HAVE THINGS THAT WORK AUTOMATICALLY? (The things sometimes don't work right, we can get hurt on them, etc.).

Ask the older student questions such as the following. WHAT ARE SOME GOOD EFFECTS OF AUTOMATION? (Fewer workers needed to get the work done, repairable products are produced in assembly line production, etc.). WHAT ARE SOME BAD EFFECTS OF AUTOMATION? (Sometimes puts men out of work, uses natural resources and energy for making automating machinery, product quality is sometimes low, etc.).

22. To recognize how computers work (dependent upon information put in; seldom make errors; etc.), and that information provided to a computer must be accurate (job applications, computer-printed bills, etc.).

TEACHER TIPS		
Suggested Activities	Teaching Resources	Teaching Strategies
		p40
		p40 p46 p81



HUMAN BODY

Ability and Assessment:

5. To identify similarities and differences in people: size, shape, hair color, eyes, likes, dislikes, hobbies, etc.

TELL ME SOME THINGS ABOUT HOW YOU AND \_\_\_\_\_ (name of classmate) LOOK ALIKE (LOOK DIFFERENT). TELL ME SOME THINGS THAT YOU LIKE (LIKE TO DO, DON'T LIKE TO DO) THAT ARE THE SAME AS \_\_\_\_\_ (name of classmate) LIKES (LIKES TO DO, DOESN'T LIKE TO DO). TELL ME SOME THINGS THAT YOU LIKE THAT ARE DIFFERENT FROM WHAT \_\_\_\_\_ (name of classmate) LIKES.

Note: Teach only one concept (skill) at a time using this format.

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: vocal verbal	recall

Content-Development Activities:

- (1) Provide long sheets of paper (from a roll of butcher or wrapping paper).

CHOOSE A PARTNER. ONE PERSON LIE DOWN ON THE PAPER AND HIS PARTNER WILL DRAW A CRAYON OUTLINE OF HIM ON THE PAPER. . . . PUT PICTURES ON THE OUTLINE OF YOU THAT SHOW THE THING THAT YOU LIKE. . . . TALK ABOUT THOSE THINGS WITH YOUR PARTNER. INTRODUCE YOUR PARTNER TO THE REST OF THE CLASS BY TELLING ABOUT THE WAY HE LOOKS AND THE THINGS HE LIKES.

Label and hang the outlines around the room.

- (2) LET'S HAVE ALL OF THE STUDENTS WITH BROWN HAIR FORM A GROUP ON THE LEFT SIDE OF THE ROOM. GOOD. NOW ALL THOSE WITH BLUE EYES SIT DOWN. NOW ALL OF THOSE WITH FRECKLES SIT DOWN.

Have a discussion of who is left standing and why he (they) didn't sit down.

- (3) Use the format from (2) above except use likes and dislikes; e.g., all the people who like to play baseball stand up; all the people who like to cook stand up, etc.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p17; 4k p20; 27a,b	p40 p76; 2

(Human body)

- (4) Have a pupil stand in front of the class for one minute, then have him leave the room or go behind a partition.

DRAW A PICTURE OF \_\_\_\_\_ (pupil's name). MAKE IT LOOK AS MUCH LIKE HIM AS YOU CAN.

Have the class compare pictures and discuss the differences represented (not in quality, but in colors and impressions). Bring the pupil before the class and compare the pictures with the pupil. Discuss which features of the pupil were most frequently portrayed in the pictures of him.

Reinforcement Activities:

- (1) Have each pupil, while seated in front of a mirror, draw or construct a picture of himself.
- (2) Have each pupil draw, construct, or write a list of his favorite things. Post the lists and the pictures on a bulletin board labeled "The People in Our Room."
- (3) Provide a tape recorder and have the pupil record a story that will tell people what he is like. Have the tape available so that other members of the class can listen to it.
- (4) Provide a cork ball approximately the size of the heads of the pupils in the room. Have an assortment of eyes, ears, noses, mouths, etc. of various types. Encourage the pupils to construct representations of themselves (looking into a mirror), or of their friends.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29

(Human body)

Ability and Assessment:

11. To recognize that air enters and leaves the body through the nose and mouth and that air goes to the lungs.

PINCH YOUR NOSE TIGHT WITH ONE HAND. CLOSE YOUR MOUTH TIGHT. NOW BREATHE. (Expected response: I can't.) DO SOMETHING SO THAT YOU CAN BREATHE. WHAT DID YOU DO SO THAT YOU CAN BREATHE? PINCH YOUR NOSE AND CLOSE YOUR MOUTH AGAIN. NOW DO SOMETHING DIFFERENT SO THAT YOU CAN BREATHE. WHAT DID YOU DO? WHY DID YOU OPEN YOUR MOUTH (LET GO OF YOUR NOSE)? (So air can get in.) WHAT PLACES CAN AIR GET INTO YOUR BODY?

Provide a model which shows the human respiratory system. If necessary, use a school-made model or pictures.

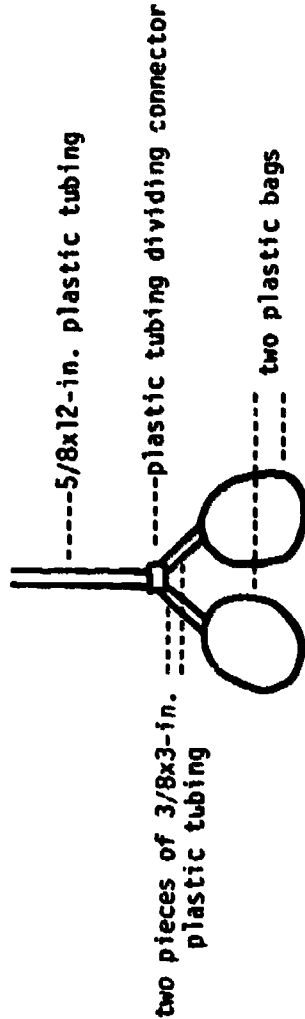
HERE IS A MODEL (PICTURE) OF A PERSON. SHOW ME WHERE AIR GETS INTO THE BODY. SHOW ME WHERE AIR GOES WHEN IT GETS INTO THE BODY. (Lungs.) WHAT DO YOU CALL THAT PART OF THE BODY? POINT TOWARD YOUR LUNGS.

Content-Development Activities:

(1) Provide the pupil(s) with two plastic bags (approximately one gallon size), a piece of plastic tubing approximately 5/8x12 in., a plastic-tubing dividing connector, two pieces of plastic tubing approximately 3/8x3 in., and small amount of tape.

1. MAKE A MODEL OF YOUR LUNGS AND AIR PASSAGE (WINDPIPE).
11. WORK THE MODEL; WATCH WHAT IT DOES AND TELL ME HOW YOUR LUNGS WORK.

The finished model should look like this:



TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12 p19; 21j. k, l	p46

(Human body)

Task Analysis

Process

Cognition

- In: I. visual nonverbal conceptual  
II. visual nonverbal recognition

- Out: I. motor nonverbal  
II. vocal verbal

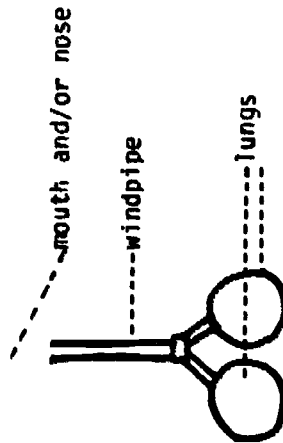
Note: For students who do not draw the conclusions stated in the above ability statement, continue with the following:

- (2) Using model constructed above, have pupil pinch the end of the tubing most distant from the plastic bags. Have two other pupils manually extend the plastic bags so that the bags will become filled with air. Next have pupils attempt to extend the bags while no one is pinching the end of the 5/8x12-in. plastic tubing closed. Then have them repeat the first portion of the assessment activity, i.e., PINCH YOUR NOSE TIGHTLY . . . INTO YOUR BODY?
- (3) Blow air into the plastic bags via the plastic tube (5/8x12 in.). Pinch the end of the 5/8x12 in. tube so that air will not escape. Present the model to the student(s). Have two students push (gently) on the walls of the plastic bags. Release the end of the plastic tube.

WHAT HAPPENED? WHY DID IT HAPPEN NOW, BUT NOT BEFORE?

- (4) Have the student label his model with the names of the parts of his body corresponding to parts in his model.

Example:



TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Human body)

- (5) Discuss similarities and differences between the model and actual lungs.

Note: (If at all possible, see your local metzgerei.) Procure a complete respiratory tract from a sheep, goat, calf, pig, etc. If the tract is reasonably fresh the lungs will be inflatable and deflatable and you and the students will be able to manipulate these organs as was suggested above with a plastic model to demonstrate the passage of air in and out of the respiratory system. Have pupil(s) record this demonstration in their science notebooks.

Reinforcement Activities:

- (1) Read own recordings in science notebook about content-development activities.
- (2) Review (i.e., redo) content-development activities, as necessary.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Human body)

Ability and Assessment:

14. To locate the position of the heart by listening and feeling and to locate major pulse points by feeling.

Have the student put his ear against another student's chest. If available, use a stethoscope. Then have him feel the pulse points at the same time his ear (stethoscope) is on the chest.

TELL ME WHAT YOU HEAR (FEEL ON THE CHEST). WHAT PART OF JOE'S (BETTY'S) BODY MAKES THAT SOUND? (Heart.) KEEP YOUR EAR ON JOE'S (BETTY'S) CHEST. WHAT IS THE HEART DOING WHEN IT MAKES THAT SOUND? (Moves, pumps, pushes blood.) KEEP YOUR EAR ON JOE'S CHEST. SHOW ME ANOTHER PLACE WHERE YOU CAN FEEL THE HEART BEAT. (Pulse points.) WHAT IS HAPPENING TO MAKE YOU FEEL THE HEART BEAT THERE?

Content-Development Activities:

(1) RUB YOUR CHEST.

Have each child stand in front of a mirror and feel his upper torso.

(2) PUT YOUR HAND ON THE PLACE ON YOUR CHEST WHERE YOU FEEL SOMETHING MOVING INSIDE.

Have the child feel around on his chest until he locates the area over the heart (upper left side).

(3) MY HEART FEELS LIKE IT IS SAYING (tap out the rhythm of your heart beat). WHAT DOES YOUR HEART FEEL LIKE IT IS SAYING?

Have each child tap out his heart beat by tapping on his desk top or other similar surface.

(4) CLOSE YOUR EYES AND TELL ME WHAT YOU FEEL.

Place the child's hand on the pulse points at his wrist. Next place his hand at the pulse point on his neck.

Task Analysis	
Process	Cognition
In: tactile nonverbal	perceptual
Out: vocal verbal	awareness

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p46

(Human body)

- (5) Have each child choose a partner.

HERE IS A LISTENING TUBE (use a stethoscope or a cardboard cylinder). PUT IT ON YOUR PARTNER'S HEART. WHAT DO YOU HEAR?

- (6) Have each child choose a partner. Each partner will attach a sheet of paper (approximately 20 x 18 inches) to the upper torso of the other child.

DRAW A CIRCLE OVER YOUR PARTNER'S HEART.

Reinforcement Activities:

- (1) Have the children record these sentences about the heart and pulse in their science notebook (e.g., "My heart is in my \_\_\_\_".)
- (2) Have each child make a human body outline model out of paper and paste the heart and pulse points on the model. Include the model in the science notebook.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Human body)

Ability and Assessment:

15. To infer the function of one's heart.

YOU HAVE FELT AND HEARD THE HEART BEAT, AND YOU HAVE FELT THE BEAT OF THE PULSE. WHAT DOES THE HEART DO FOR YOUR BODY?

Content-Development Activities:

(1) Use a medium-size red balloon partially filled with red-colored water. Insert a length of plastic tubing into the neck of the balloon. Tie or tape the neck of the balloon to the tubing (it is important that the fit be as leakproof as possible).

HERE IS A MODEL OF YOUR HEART. YOU MAKE THE HEART WORK.

(2) Have children run in place for 10 seconds.

WHAT IS YOUR HEART DOING NOW? (Elicit: pumping.)

(3) On one side of a page have pictures of machines such as a crane, a cement truck, and a pump.

DRAW A LINE BETWEEN THE HEART AND THE MACHINES THAT WORK LIKE IT.

(4) Use flannel pieces for the children to construct a "person" on the flannel board.

MAKE A PART OF OUR PERSON. TELL US WHAT THE PART WILL DO BEFORE YOU PUT THE PART ON. (Eyes to see, legs to walk, heart to pump, etc.)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12 p19; 21j, k, l	p29



(Human body)

(5) Play a riddle game using functions of parts of the body as the content, i.e.:

I say thump, thump all night and day.  
I never stop while you rest or play.  
I send the blood to every part.  
I'm in your chest. I am your \_\_\_\_\_.

Reinforcement Activities:

(1) Have the children include in their science notebooks, under the title of "The Heart Works in Animals I Know," pictures of familiar animals and man.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p75

(human body)

Ability and Assessment:

17. To recognize the major parts of the human skeleton.

Provide a model of a human skeleton. If necessary, use pictures.

WHAT DOES THIS MODEL (PICTURE) SHOW US? (Probable response: skeleton.) WHAT DO WE CALL THE PARTS OF THE SKELETON? (Bones.) POINT TO A LEG BONE (ARM BONE, HAND BONE, etc.). (Point to the major bones.) WHAT IS THIS BONE? (Expect only general responses such as foot bone, head bone.)

Content-Development Activities:

- (1) PUSH YOUR FINGERS AGAINST YOUR FOREHEAD. IS YOUR FOREHEAD HARD OR SOFT? (Hard.) NOW PUSH YOUR FINGERS AGAINST YOUR BELLY. IS THAT HARD OR IS IT SOFT? (Soft.) WHY DOES YOUR FOREHEAD FEEL HARD AND YOUR BELLY FEEL SOFT? (Because my head has bones [a bone] and my belly has no bones.)
- (2) WE ALL HAVE LOTS OF BONES. TOUCH YOUR FOOT, DOES YOUR FOOT HAVE A BONE? YES. LET'S CALL THAT YOUR FOOT BONE.
- (3) FEEL YOUR LEG FROM YOUR FOOT TO YOUR KNEE. DOES YOUR LOWER LEG HAVE A BONE? WHAT SHALL WE CALL THIS BONE? (Lower leg bone.)

Note: Follow the format of content-development activity (3). Have the pupils identify their upper leg bones, hip bones, back bones, shoulder bones, upper arm bones, lower arm bones, hand bones, finger bones, neck bones, head bones (face bones).

- (4) Present a model skeleton:

THIS IS A MODEL OF A PERSON'S SKELETON. YOUR BONES ARE LIKE THESE, BUT YOUR SKIN, FAT, MUSCLES, AND OTHER PARTS COVER YOUR BONES SO THAT WE CANNOT SEE THEM. SHOW ME THE LEG BONE ON THIS MODEL.

Note: Follow the format of content-development activity (4). Have pupils recognize each of the bone groups identified above.

- (5) Play a game in which a pupil stands before the model of the human skeleton and points to each of the bone groups specified above as the teacher or another pupil names the bones. As soon as a player makes a mistake he sits down and another pupil attempts to respond correctly as the bones are named.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12 p21; 34, 35	p29 p40 p46

(Human body)

Task Analysis	
Process	Cognition
In: auditory verbal	perceptual
Out: motor nonverbal	recognition

Reinforcement Activities:

- (1) Sing the bone song. Substitute "lower leg bones" for "leg bone" and "upper leg bone" for "thigh bone," etc., to incorporate all of the bone groups listed above. Select one pupil to point to the bones as the class sings the song.
- (2) Point to the bones and have the pupils tell us, chorally, the name.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	

(Human body)

Ability and Assessment:

20. To infer that exercise helps to develop strong muscles.

HOW DOES REGULAR EXERCISE CHANGE YOUR MUSCLES?Content-Development Activities:

(1) Begin a thrice-weekly weight-lifting program (or other exercise program with measureable resultant muscle gain such as long jump, high jump, chin ups, push ups, etc.) with all interested pupils. Request the assistance of the physical education instructor (if possible, have the P.E. instructor create and supervise the programs). Have each child involved in a program report his initial and final results (scores, distances, times, etc., as appropriate) to the class, and tell what he did to bring about the change that resulted.

(2) ARE YOU STRONGER NOW THAN YOU WERE WHEN YOU WERE \_\_\_\_\_ (state the age that the pupil was two years ago)? WHAT HAS MADE YOU STRONGER? (Exercise and growth.)

(3) Present the pupil with "before" and "after" pictures from a muscle-building advertisement.

WHAT DID THIS MAN DO TO MAKE HIS MUSCLES BIGGER AND STRONGER?

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: vocal verbal	recall

Reinforcement Activities:

(1) Invite an athlete from one of the high-school teams to your room to explain all the exercises he performs to strengthen his muscles to make himself a better competitor in his sport.

(2) Invite a jogger, hiker, or cyclist to explain to the class the health benefits of his favorite form of exercise.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12	

(Human body)

Ability and Assessment:

25. To infer the function of the human nervous system in transmitting messages.

Consider what the student being assessed would react to without fear or alarm, then do something to cause a reflex action in him. For example, prick his finger with a pin, cause a knee-jerk, blow a whistle, wave your hand before his eyes.

WHY DID YOU JUMP (BACK UP, SAY "OUCH," etc.)? (Probable response: it hurt, it surprised me, etc.) HOW DID YOUR BODY KNOW THAT IT HURT (WAS SURPRISED, etc.)? (Possible response: my brain told me.) HOW DID THE MESSAGE GET FROM YOUR FINGER (KNEE, etc.) TO THE BRAIN? (By nerves.) Or, use other questions eliciting responses concerning transmission of messages to and from the brain via nerves.

Content-Development Activities:

(1) Select six to eight children to stand in a line. The child at the beginning of the line will have a picture of a pin, the next child will have a picture of a hand. The last child will have a picture of the brain. The "hand" will be placed over the "pin." The children in between the "hand" and the "brain" will each in turn quickly say "It hurts" until the "message" gets to the "brain." The "brain" will say "Move it." Each of the messengers will repeat "move it" until the message gets to the "hand." The "hand" will move.

(Vary the stimulus for the hand, i.e., water, animal fur, snow, and the rate of message transmission-- slower rate for more pleasant stimuli.)

Ask the rest of the class: WHAT DID YOU SEE AND HEAR HAPPEN?

Task Analysis	
Process	Cognition
In: visual nonverbal auditory verbal	perceptual recall
Out: vocal, verbal	

(2) WHAT DO YOU THINK HAPPENED INSIDE OF YOU WHEN YOU TOUCHED THE PIN (or other stimuli)?

Present the real stimulus objects from the pictures in (1) above. Each child is to feel each object.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12	p81

(Human body)

(3) PUT THE PARTS ON THE BOARD THAT WILL GET THE MESSAGE TO THE BRAIN.

Have a felt board with felt shapes for visual, tactile, olfactory, gustatory, and auditory stimuli and the appropriate felt end organs with each stimuli on one side, and the brain on the other side. Have "nerves," "blood," and "bones" made of felt.

Reinforcement Activities:

- (1) Have a series of pictures showing children being stimulated with the objects used in content-development activities (1) and (2) in one column of a dittoed worksheet. In the other column have words that would be messages (soft, hurt, sharp, warm, etc.).

DRAW A LINE TO THE MESSAGE WORD FROM THE PIN (FUR, etc.).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p29

## HEALTH

Ability and Assessment:

3. To select food for a nutritious meal (breakfast, lunch, dinner, snack) and to describe how the foods selected help to keep the body healthy.

Provide a set of pictures of foods which could be eaten at breakfast. Have one food per picture, and have a preponderance of foods usually eaten at breakfast (eggs, cereal, toast, milk, orange juice, etc.). Also have pictures of other foods.

HERE ARE SOME PICTURES OF FOODS. PRETEND YOU ARE IN A CAFETERIA (RESTAURANT) AND THESE ARE THE FOODS ON THE COUNTER. PICK OUT FOODS WHICH SHOW A BREAKFAST YOU WOULD LIKE TO EAT. BE SURE TO PICK OUT A BREAKFAST THAT IS GOOD FOR YOU TO EAT. Allow him to select the breakfast. Then, as appropriate for his age, needs, and food selected, ask such questions as the following: WHY DID YOU PICK OUT EGGS (TOAST, MILK, etc.)? WHAT CAN (name of same food) DO IN YOUR BODY TO HELP YOU STAY HEALTHY? DO YOU HAVE ALL THE KINDS (GROUPS) OF FOOD THAT YOU NEED TO HAVE IN A MEAL? WHY DO YOU NEED TO EAT A GOOD BREAKFAST EVERY DAY?

Note: Any selection of foods that provides a balanced meal is permissible, even if it is unusual. For example, a breakfast of hot dog, milk shake, and an apple is nutritionally acceptable.

## Task Analysis

Process

In: visual nonverbal  
Out: vocal verbal

Cognition

conceptual  
recall

Use a procedure similar to that above for selecting food for a lunch or dinner.

Provide a set of pictures of foods which could be eaten as snacks. Have one food per picture. Be sure to include some nutritious foods (for example, nuts, cheese, carrot sticks, celery sticks, fruit, hot chocolate, peanut-butter sandwich); some sweets (for example, pastry, candy bar, cake); some commonly used snacks (for example, potato chips, pretzels, soda pop). Alternatively, use real foods instead of pictures.

HERE ARE SOME PICTURES OF FOODS THAT PEOPLE SOMETIMES EAT FOR SNACKS. SHOW ME SOMETHING THAT IS A GOOD SNACK TO HAVE AFTER SCHOOL (AT BEDTIME, etc.). Have him select several different snacks. Then, as appropriate for his age, needs, and snacks selected, ask such questions as the following.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p17; 8b-d, 9.j	p40 p46

(Health)

WHAT KIND OF FOOD GROUP DOES YOUR CANDY BAR (POPCORN, APPLE, etc.) BELONG TO? WHAT DOES IT DO TO HELP YOU HAVE A HEALTHY BODY? If many sweets or foods with empty calories are chosen, ask questions such as these: WHAT DOES THIS KIND OF FOOD DO FOR YOU? (Elicit responses indicating that they provide quick energy.) WHAT WILL HAPPEN TO YOU IF YOU EAT TOO MUCH OF THIS KIND OF FOOD?

Task Analysis:ProcessCognition

In: visual nonverbal  
Out: vocal verbal

conceptual  
recognition

Content-Development Activities:

(1) Go to the Commissary for a food-buying trip with these prior instructions:

SELECT WHATEVER FOODS YOU THINK WE SHOULD HAVE FOR OUR MEAL.

(2) Prepare the meal.

MAKE A LIST ACCORDING TO FOOD GROUPS OF ALL THE FOODS WE HAD FOR OUR MEAL.

(3) Plan a food-buying trip. But organize the class:

WE WILL MAKE ONE GROUP OF SHOPPERS FOR EACH FOOD GROUP. WHO WANTS TO BE A SHOPPER FOR THE (MEAT, DAIRY, FRUITS, VEGETABLES, BREAD, CEREAL) FOOD?

(4) Take a food-buying trip to the Commissary.

EACH GROUP BUY THE FOOD FROM YOUR FOOD GROUP FOR OUR BREAKFAST (LUNCH, SNACK).

(5) WHICH OF THE MEALS WAS THE MOST NUTRITIOUS?

TEACHER TIPS	
Teaching Resources	Teaching Strategies



(Health)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p><u>Reinforcement Activities:</u></p> <p>(1) Continue the organized meals until all three meals have been prepared and evaluated. Encourage pupils to change from one buying group to another.</p> <p>(2) Have the pupils prepare menus of nutritious meals using familiar foods in their homes.</p>		p40

## (Health)

Ability and Assessment:5. To describe the function of water in the body.

WHAT ARE SOME WAYS YOUR BODY GETS RID OF WATER? (Urination, perspiration, exhalation.) WHAT DOES YOUR BODY GET RID OF WITH THE WATER? (Wastes, dissolved in water.) WHY DO YOU NEED TO HAVE WATER IN YOUR BODY? (To help get rid of wastes.) HOW DOES YOUR BODY GET THE WATER IT NEEDS? (Drinking water and other liquids, eating foods containing water.)

Content-Development Activities:

(1) ABOUT HOW MUCH WATER DO YOU DRINK AND EAT (foods containing relatively large proportions of water) EACH DAY? (Expected response: 8 or 9 glasses full in all.) HOW DOES YOUR BODY GET RID OF WATER? (Perspiration [sweat], urination, and exhalation [look at your breath on a cold day].)

(2) Select volunteers (two or three).

RUN AROUND THE SCHOOL BUILDING TWICE, AS FAST AS YOU CAN. When they return, the runners should be seated along with two or three other pupils with a fan blowing directly upon all of them. When one of the runners begins to shiver or give other indication that he is cold begin questioning. WHY ARE YOU (a runner) COLD? Ask any nonrunner: ARE YOU COLD OR JUST COOL? WHY ARE THE RUNNERS COLD, BUT THOSE WHO HAVEN'T RUN ONLY COOL? (Expected response: because the runners are sweating.) DOES THAT MEAN THAT SWEATING IS A WAY OF HELPING YOUR BODY COOL? (Desired response: yes.)

(3) WE ARE GOING TO FIND OUT ANOTHER THING THAT PERSPIRING DOES FOR US TODAY. EVERYONE RUN AROUND THE SCHOOL BUILDING AS FAST AS YOU CAN. When they return tell each to lick some of the sweat on his arm. WHAT DOES SWEAT TASTE LIKE? (YES, IT TASTES LIKE SALT.) SWEAT REMOVES SOME OF THE WASTES FROM YOUR BODY, AS URINE DOES.

(4) WE HAVE TALKED ABOUT THREE WAYS THAT WATER LEAVES OUR BODIES. WHAT ARE THEY? (Urination, perspiration, exhalation.) WE HAVE ALSO TALKED ABOUT THREE THINGS THAT THE WATER LEAVING OUR BODIES DOES THAT ARE HELPFUL TO OUR BODIES. WHAT ARE THEY?

Reinforcement Activity:

Review content-development activities as necessary until your pupils thoroughly understand the major obvious functions of water in the body.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40 p46

(Health)

Ability and Assessment:

8. To take one's temperature and to determine whether it is normal, subnormal, or indicates a fever.  
Provide an oral fever thermometer.

HERE IS A THERMOMETER; TAKE YOUR OWN TEMPERATURE. IS YOUR TEMPERATURE WHAT IT SHOULD BE? WHAT TEMPERATURE WOULD INDICATE THAT YOU HAVE A FEVER?

Content-Development Activities:

- (1) Review lessons on how to read a weather thermometer (Weather and Climate subsection, ability #2).
- (2) Present a fever thermometer.

YOU CAN SEE THAT THE NUMBERS ARE MUCH SMALLER AND THEREFORE HARDER TO READ THAN A WEATHER THERMOMETER, BUT IT WORKS THE SAME WAY.

Have the pupils practice reading the thermometer until each pupil reads the thermometer correctly at least once.

- (3) Prepare several pans of warm water. Be sure the water is not more than 108°F. Have each pupil use a thermometer to determine the temperature of each pan of water, and write the temperatures on the chalkboard.

Task Analysis	
Process	Cognition
In: visual verbal	perceptual
Out: motor verbal	awareness

- (4) Invite the school nurse in to instruct the pupils how to take a temperature. Be sure she specifies that the thermometer must be shaken to get it below 98.6°F, that it remains in one's mouth for at least five minutes, and that the thermometer be read immediately upon being withdrawn from the mouth. Have pupils practice taking and recording each others' temperatures. Be sure they realize that the average normal temperature is 98.6°F.

TEACHER iPS	
Teaching Resources	Teaching Strategies
	p31

(Health)

- (5) Discuss what might cause a temperature recording to be erroneous, i.e., having drunk or eaten something very hot or very cold within one-half hour of when the temperature is taken. Divide the class into three equal groups. Have one-third of the class drink 8 ounces of very cold milk, etc. Have others drink very hot chocolate. Have the remaining members of the class measure and record the oral temperatures of the pupils who have drunk the hot and cold liquids.
- (6) Discuss a fever and what it means (that one's body is not working normally or that one is ill). Discuss a subnormal temperature and when that might occur. (Subnormal temperature might occur from prolonged exposure to very cold temperatures.)

Reinforcement Activities:

- (1) Invite a doctor into the classroom. Tell the pupils in advance that he will ask them questions about temperatures, etc. (Discuss with the doctor in advance of his appearance in the class what you have discussed with your pupils. Ideally, provide him with a copy of your lesson plans.) After the doctor has questioned the pupils allow them to question him.
- (2) Invite the school nurse to come in and review the processes and facts presented in the content-development activities above.
- (3) Visit a hospital during "temperature-taking" time and arrange for a nurse to answer questions, if possible.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Health)

Ability and Assessment:

12. To name some common ways to minimize illness, and to practice these ways of avoiding illness.

TELL ME SOME THINGS YOU DO TO HELP YOU KEEP FROM GETTING SICK. (Appropriate responses: get plenty of sleep, eat a balanced diet, keep clean [esp., keep hands well washed], stay away from people who are sick.)

Observe the pupil over a period of time for evidence that he is practicing these health habits.

Content-Development Activities:

- (1) Review ability #10 from this subsection.
- (2) LET'S MAKE A LIST OF ALL THINGS WE CAN DO TO HELP US KEEP FROM GETTING SICK. After the list is made on the chalkboard, with as many class members as possible taking part, have all members copy the list. Instruct the pupils to ask parents and/or brothers and sisters to add to their lists. The next class day discuss the original list and the additions that have been made at home. Make a class decision on which items are important and which are not important.
- (3) Invite the school nurse to tell the class which items on their list are important and why. Allow time for the pupils to ask other questions they may have.
- (4) Make a large wall chart upon which each pupil has an entry space for each day. (E.g., the number of hours of sleep he got the night before; how many balanced meals were eaten; whether or not he took a shower or bath; washed hands before meals; etc.) Provide an entry space in which each pupil enters yes or no in answer to whether he was near someone who was sick.
- (5) On another chart have each pupil plot the days he misses school due to illness.
- (6) Periodically discuss the two charts and, where possible, note any apparent relationships between the health practices and the illness (or health) of the pupils.

Task Analysis	
Process	Cognition
In: visual verbal	conceptual
Out: vocal verbal	recall

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40
	p81
	p40

(Health)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p><u>Reinforcement Activities:</u></p> <p>(1) Repeat the kind of discussion described in content-development activity (4).</p> <p>(2) Invite a doctor or nurse in to discuss the things a person can do to minimize the likelihood of one's becoming ill.</p>		

ANIMALSAbility and Assessment:2. To classify characteristics of animals which distinguish animals from nonliving things.

Provide several animals, or pictures of animals, and several inanimate objects.

IS THIS AN ANIMAL? HOW DO YOU KNOW THAT IT IS (IS NOT) AN ANIMAL? After many such questions, ask: IN WHAT WAY (WAYS) ARE ALL ANIMALS ALIKE?

Content-Development Activities:

- (1) Use several animals or pictures of animals and identify each by name, and kind of animal, e.g., "Homer is a guinea pig and he is an animal," etc.
  - (2) Have a pet "Show-and-Tell Day" in which each pupil brings his pet to school and introduces it to the remainder of the class. In the introduction, request that each child state the name of his pet and tell a story about it.
  - (3) Take a trip to the zoo; ask children to name the different animals as you come upon them.
  - (4) Present inanimate objects.
- IS THIS AN ANIMAL OR SOMETHING ELSE (NONLIVING THING)? WHAT IS IT? HOW ARE ALL THESE THINGS ALIKE? (They are not living things; they are not animals.)
- (5) IN SEVERAL LESSONS WE HAVE BEEN TELLING WHETHER SOMETHING IS AN ANIMAL OR A NONLIVING THING. LET'S MAKE A LIST OF THE THINGS THAT ALL ANIMALS HAVE AND THE THINGS THAT NONLIVING THINGS DO NOT HAVE. WHO CAN TELL ME SOME THINGS THAT WE CAN PLACE ON OUR LIST?

Record the list on the chalkboard as the students volunteer items characteristic of only animals.

<u>Task Analysis</u>	
<u>Process</u>	<u>Cognition</u>
In: auditory verbal	conceptual
Out: voc: verbal	recall

<u>TEACHER TIPS</u>	
<u>Teaching Resources</u>	<u>Teaching Strategies</u>
p18; 12, 16a	p40
p20; 27b	p46
	p29
	p40

(Animals)Reinforcement Activities:

- (1) Repeat content-development activities as necessary for review.
- (2) Make a bulletin board display of animals with similar characteristics and of nonliving things.

TEACHER TIPS	
Teaching Resources	Teaching Strategies



(Animals)Ability and Assessment:

8. To relate some things that man does for pets, farm animals, and wild animals; and to describe some things these animals do for man.

Designate a particular animal or kind of animal to the student (for example, his dog, other dogs, pets). Ask questions such as the following.

WHAT DO YOU DO TO HELP YOUR DOG LIVE? WHAT DO WE DO FOR DOGS (PETS)? WHAT DOES YOUR DOG DO FOR YOU? WHAT DO DOGS (PETS) DO FOR MAN? Concerning man's use to the animal, accept responses having to do with man's providing care, protection, food, shelter, conservation, etc., as appropriate for the particular animal. Concerning the animals' uses to man, accept as responses ideas such as the following: Pets provide us with love, companionship, protection, amusement, etc. Farm animals provide food, work, recreation, etc. Wild animals provide beauty, food sometimes, links in the food chain, etc. For wild animals, especially, elicit responses concerning the animals' helpfulness or harmfulness to man, and vice versa.

Content-Development Activities:

- (1) Review ability #3 from this subsection of Science.
- (2) Discuss specific food, water, and shelter needs of pets (another day--farm animals; another day--wild animals).
- (3) Have children who have pets describe what and how they feed and care for their pets.
- (4) Invite a farmer (who speaks comprehensible English) to come in and describe what and how he feeds his farm animals, how the animals are provided with water, and the shelter requirements of his animals during each season of the year.
- (5) Invite a conservation officer (who speaks comprehensible English) into the classroom to discuss the needs (food, water, shelter) of wild animals. Also request that your guest discuss ways that wild animals fulfill their needs themselves and what man is doing to assist wild animals in meeting their own needs.
- (6) In separate discussions discuss what pets do for people (i.e., provide companionship; provide protection--e.g., watchdogs, etc.), what farm animals do for people (i.e., provide food and, in infrequent cases, work), and what wild animals do for people (i.e., beautify and balance the environment).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40 p81

(Animals)

Reinforcement Activities:

- (1) Have the pupils bring pets to school and allow each child to describe what he does for his pet and what his pet does for him.

Task Analysis

Process

Cognition

In: visual nonverbal conceptual  
Out: vocal verbal recall

- (2) Visit a farm and discuss what the animals eat, and how they get each kind of food that they eat, how water is provided to them, and how and what shelter is provided to them. Also discuss how the animals or animals are used by man and/or what they do for man.
- (3) Visit a forested area. Discuss what the wild animals eat and drink and where they find shelter and what their shelter consists of. Also discuss what these animals do for man.
- (4) Visit a zoo and discuss how the needs of these wild animals are met and what these animals do for man.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

PLANTSAbility and Assessment:

7. To infer that when plants reproduce, they produce other plants of the same kind; and to name some methods of plant reproduction.

Provide seeds of plants which are available in the classroom or nearby.

THESE SEEDS WERE MADE BY THAT TREE (PLANT, BUSH, etc.). SUPPOSE WE PLANTED THE SEEDS SHOW ME THE KIND OF THING THEY WOULD GROW INTO.

TELL ME ONE WAY THAT WE CAN MAKE A NEW PLANT LIKE THIS ONE (ONE WAY THAT THIS PLANT MAKES A NEW PLANT). Responses could include reference to use of seeds, roots, bulbs, stems, cuttings. Ask for a description of the procedure he mentions. Preferably, ask for a demonstration, if appropriate for the situation.

Content-Development Activities:

- (1) Present vegetable plants whose produce are their seeds (e.g., corn, several kinds of beans, peas). Present other plants and their seeds as distractors.

PUT THE PLANTS WHOSE PRODUCE LOOK LIKE THEIR SEEDS WITH THEIR SEEDS.

<u>Task Analysis</u>	
<u>Process</u>	<u>Cognition</u>
In: visual nonverbal	conceptual
Out: motor nonverbal	recognition

- (2) Prepare a planting area large enough to grow one each of the plants whose produce are their seeds. Place pictures of the seed and the plant (i.e., corn plant and the ear of corn, bean bush and the bean, etc.) on a stick in the immediate growing area.

WATCH FOR THE PLANTS TO GROW.

When the plants start to grow, remove the pictures.

WHAT SEED DO YOU THINK THIS PLANT CAME FROM? DRAW A PICTURE OF WHAT YOU THINK WILL COME FROM THIS PLANT.

<u>TEACHER TIPS</u>	
<u>Teaching Resources</u>	<u>Teaching Strategies</u>
p18; 11	p46
p20; 2Ca, b, d	
p21; 28e, 30	p31

(Plants)

(3) Show the pictures of the plants.

WHAT DID WE DO TO GROW ANOTHER (BEAN PLANT, CORN PLANT, etc.)?

(4) Bring in a mature begonia, African violet, or other house plant, a leaf of which you can use to reproduce the plant.

WOULD YOU LIKE TO HAVE ANOTHER \_\_\_\_\_ (name of plant) IN OUR ROOM? WE DO NOT HAVE A SEED FOR FOR \_\_\_\_\_ (same plant). WE CAN TRY ANOTHER WAY TO GROW A \_\_\_\_\_ (same plant).

Demonstrate plant reproduction through leaf propagation: Select a healthy leaf and make a small incision in the middle rib on the lower side of the leaf. Place the leaf on sandy soil with a pebble or a little of the soil on top. Keep in a shaded spot and slightly moist. Roots and then leaves will be formed.

YOU PLANT YOUR LEAF THE SAME WAY I PLANTED MINE.

Provide potting soil, a leaf, and a shallow container for each child.

(5) Bring in a plant from which you can take a stem cutting (coleus, ivy, Wandering Jew).

WOULD YOU LIKE TO HAVE ANOTHER \_\_\_\_\_ (name of plant) IN OUR ROOM? WE WILL NOT USE A SEED NOR A LEAF. WE WILL TAKE A CUTTING.

Make a diagonal cut across the stem, just below a leaf joint. If the cutting is going to be water rooted, remove the bottom leaves before submerging the cutting in water. If the cutting is going to be sand or soil rooted, all the leaves may stay on. If the cutting is water rooted in a small clear glass or plastic container, the roots can be observed while they are growing.

Have each child make his own cutting: YOU TAKE A CUTTING AND PLANT YOURS THE SAME WAY THAT I PLANTED MINE.

(6) WATCH YOUR PLANTS AND GIVE ME A DAILY REPORT ON ANY CHANGES YOU SEE.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

(Plants)

- (7) After the water-rooted cuttings have rooted, assist each child in potting the plants.
- (8) Develop an experience chart titled "Ways That We Get New Plants."
- Reinforcement Activities:
- (1) Encourage some children to make collections of plants from leaf propagation and stem cutting.
- (2) Grow plants from seeds, leaves, and cuttings for gifts.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40

(Plants)

Ability and Assessment:

8. To distinguish between seeds and non-seed objects and to identify the purpose of seeds.

Provide several samples of rather common seeds (bean, corn, radish, tomato, watermelon, etc.), some common non-seed small objects (marbles, metal shot, small macaroni, oatmeal, bits of cardboard, etc.), and a set of seeds and small non-seed objects that may be unfamiliar to the student (rice, weed seeds, metal shavings, bits of styrofoam, etc.).

SOME OF THESE THINGS ARE SEEDS. SOME ARE NOT SEEDS. SEPARATE THE SEEDS FROM THE OTHER THINGS. PUT THE SEEDS HERE. PUT THE THINGS THAT ARE NOT SEEDS HERE. PUT THE THINGS THAT YOU ARE NOT SURE ABOUT HERE. For an older student, have labels ready. WHAT COULD THIS SEED DO? (Grow into a plant.) WHAT KIND OF A PLANT WILL IT MAKE?

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: vocal verbal	awareness
	recall (last 2 sentences)

Content-Development Activities:

- (1) Provide two collections of seeds and small non-seed objects    potting soil, and shallow rectangular pan (plastic dish pan, roaster bottom, etc.).  
  
WE WILL PLANT THESE THINGS (one whole collection). WATCH THEM AND SEE WHAT HAPPENS. CHOOSE A THING TO PLANT AND PLANT IT LIKE I DO MINE. Demonstrate planting of an object or seed.
- (2) Make a chart with the children showing each of the items planted and the date of planting, with space by each object to record in either words or pictures what happens to the object or seed over a period of time during which appropriate care has been provided for the seeds to sprout.  
  
MAKE A RECORD SHEET LIKE THIS ONE. PUT THE RECORD SHEET IN YOUR SCIENCE NOTEBOOK (remind the children to check the planted box from time to time and record their observations at the end of each

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 11 p20; 28a p21; 30	p40

## (Plants)

	TEACHER TIPS	
	Teaching Resources	Teaching Strategies
<p>week, making the recording on the "big" chart an entire class activity. LET'S PUT ANYTHING THAT WE HAVE NOTICED IN OUR PLANTING PAN ON OUR RECORD CHART.</p> <p>(3) After some young plants have come up pose this problem to the children. HOW CAN WE FIND OUT WHAT HAPPENED TO THE THINGS THAT WE PLANTED? (Elicit: take them out of the soil and look at them.)</p> <p>(4) TAKE EACH THING OUT OF THE SOIL. LOOK AT IT. TELL ME ALL ABOUT IT. TELL ME IF IT IS DIFFERENT NOW FROM WHEN WE PLANTED IT. (Elicit: some became plants or grew.)</p> <p>(5) Make a transparency set up in three columns. On the left, leave a space for the seed or object that was planted. In the middle, a picture of the planting box. On the right, a space to show the changed seed or object. Put the seed or object on the left side. Point to the right side.</p> <p>WHAT GOES HERE? PUT IT HERE.</p> <p>(6) Give the pupils a dittoed worksheet set up like the transparency, except that the seeds and objects do not correspond to the result of the seed or object being planted.</p> <p>DRAW A LINE FROM EACH OBJECT TO THE PLANTING BOX AND FROM THE PLANTING BOX TO THE WAY THE OBJECT LOOKED AFTER BEING PLANTED. Place the completed and corrected worksheet in the child's science notebook.</p> <p>(7) Make a transparency titled "Things that Make Plants" and have pictures of seeds and plants.</p> <p>PUT THE THINGS THAT GROW ON THE TRANSPARENCY. WHAT IS ANOTHER NAME FOR THINGS THAT MAKE PLANTS? (Elicit: seeds.)</p> <p><u>Reinforcement Activities:</u></p> <p>(1) Bring in fruit and vegetables that have seeds and make a seed collection.</p> <p>(2) Develop with the children a chart titled: "Favorite Fruits and Their Seeds." Have pictures of the children's favorite fruits and the real seeds from them.</p>		<p>p30</p> <p>p30</p> <p>p40</p>

(Plants)

Ability and Assessment:

10. To identify some plants used by man and to state how man uses each.

Point to a tree or other plant, or show a picture of the plant. Ask questions such as the following, as appropriate for the situation.

WHAT DOES THE TREE DO FOR US NOW? (Provides shade, beauty, fruit or nuts for food, water retention, etc.)  
 WHAT COULD THE TREE DO FOR US IF WE CUT IT DOWN? (Provide fuel, lumber for shelter, etc.) IS THE  
 \_\_\_\_\_ (name of plant) HELPFUL (HARMFUL) TO US? TELL ME HOW IT IS HELPFUL (HARMFUL).

Content-Development Activities:

(1) Have a collection of real plants or pictures of them. The collection should include some vegetable or berry plants, some weeds, some flowering plants, both shade and fruit trees, and some house plants.

SHOW ME SOME PLANTS THAT YOU CAN USE.

(2) Have fresh vegetables and fruits in the classroom.

HERE ARE SOME PICTURES (OR NAMES) OF PLANTS (a tree and the plants from which each of the produce items came). PUT A PICTURE OF \_\_\_\_\_ (name of plant) ON ANYTHING IN THE ROOM THAT WE USE OR GET FROM THE PLANT.

Task Analysis	
Process	Cognition
In: visual nonverbal	conceptual
Out: motor nonverbal	recognition
(3) Cut out pictures of plants and their products. Prepare a wall chart titled "Plants and What They Give Us." Hold up a plant cut-out and its produce.	
HERE IS A PLANT AND THE THING IT GIVES US. I'LL PUT THEM ON OUR CHART. YOU COME AND FIND A PLANT AND WHAT IT GIVES US, AND PUT THEM ON THE CHART.	

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40 p46
	p29



(Plants)

(4) Prepare a transparency. On the upper half show a child sitting at a wooden table eating an apple and looking at a house plant. On the bottom half show several plants (the apple tree, a tree for lumber like the white pine, the house plant).

SHOW ME A PLANT THE BOY IS USING AND TELL US HOW HE IS USING THE PLANT.

Reinforcement Activity:

Have pupils keep a record for two days of the things that they use from plants. Have them include the record in their science notebooks.

TEACHER TIPS		
Teaching Resources	Teaching Strategies	
	p30	

WEATHER AND CLIMATEAbility and Assessment:

2. To be aware that a thermometer measures temperature and to read outdoor and indoor thermometers.

Provide thermometers used to measure temperature outdoors, and household thermometers. Younger students should probably be expected to read only the vertical type, containing liquid in a tube. Older students might be expected to read dial-type thermometers also.

WHAT DO YOU CALL THIS? WHAT DO WE USE IT FOR? WHAT IS THE TEMPERATURE TODAY IN THE CLASSROOM? TAKE THIS THERMOMETER OUTDOORS AND FIND OUT WHAT THE TEMPERATURE IS.

Note: You could arrange to have him read different temperatures in one assessment activity by having him check outdoor temperatures in the shade, in the sun, etc. Indoor temperatures can be checked in a sunny window, in a darker part of the room, in a refrigerator, etc. Be sure he waits a few minutes after placing the thermometer in a new location before he reads it.

Content-Development Activities:

- (1) Present the child with a common, vertical type, weather thermometer. Cover all of the thermometer except the vertical tube with construction paper such that the portion below the 50°F mark is covered with blue paper, the portion from 50°F to 100°F is covered with white paper, and the portion above 100°F is covered with red construction paper. Write the words "cold," "warm," and "hot" on the blue, white, and red paper respectively. Place the thermometer on a block of ice or a bag of ice cubes.

IS ICE HOT OR COLD? LOOK AT THE THERMOMETER; IS THE TOP OF COLORED "STUFF" IN THE TUBE BESIDE THE BLUE PART, THE RED PART, OR THE WHITE PART OF THE THERMOMETER? (Response: the blue part.) THE TOP LINE OF THE "STUFF" IN THIS TUBE GOES TO THE LOWER PART WHEN IT TOUCHES COLD THINGS.

Place the thermometer directly on or over something with a temperature of 100°F or more. IS THIS (name of object) WARM, HOT, OR COLD? LOOK AT THE THERMOMETER; IS THE TOP LINE OF THE "STUFF" IN THE TUBE BESIDE THE RED, WHITE, OR BLUE? (Red.) WHY IS THE LINE THERE? (Desired response: when a thermometer is near or in hot things the "stuff" inside the tube goes up near the top.)

Place the thermometer anywhere in the classroom, but be sure it is not in direct sunlight or near any other source of intense heat. IS THE CLASSROOM WARM, HOT, OR COLD? LOOK AT THE THERMOMETER; WHERE IS THE TOP OF THE "STUFF" IN THE TUBE? WHAT DOES THAT TELL YOU? (Desired response: when the top line of the "stuff" is beside the white paper, the thermometer is in a warm place or near something that is warm.)

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p17; 7	p46
p19; 21a,b,c	
p20; 27b	

(Weather and climate)

- (2) Have children practice reading the words cold, warm, and hot.
- (3) Remove the colored construction paper from the thermometer used in content-development activity (1) and replace it with plain white construction paper. Make a heavy black line at the 50°F line and at the 100°F line. Write "cold" in large blue letters on the white paper, below the line at the 50°F mark, "warm" in black letters between the 50°F and the 100°F marks, and "hot" in red letters above the 100°F mark. Follow a procedure similar to that in content-development activity (1), in which the children answer questions about the temperature (cold, warm, or hot) and give reasons for their answers.
- (4) Be sure your pupils read numbers well before you begin this activity. Remove the paper from the section marked "cold" on the thermometer described above in content-development activity (3). Point to the numbers on the scale.
- THESE NUMBERS TELL US HOW COLD SOMETHING IS. (Place the thermometer in a pan of ice water.) LOOK AT THE TOP OF THE LINE OF "STUFF" IN THE TUBE. IT IS BESIDE THE NUMERAL 32. WHEN WE READ THIS THERMOMETER WE SAY, THE TEMPERATURE OF THIS WATER WITH ICE IN IT IS 32 DEGREES. NOW WE ADD A LITTLE HOT WATER. (Show the students that it is hot, and add a small amount to the pan of ice water. As soon as all the ice has melted stir the water, and place the thermometer in the pan again.) NOW LOOK AT THE TOP OF THE LINE OF THE "STUFF" IN THE TUBE. WHAT NUMERAL IS IT BESIDE NOW? WHAT IS THE TEMPERATURE OF THE PAN OF WATER NOW? (Follow the above sequence in having the pupil read the temperature of water which is above 100°F.)
- (5) Present the child with an oven thermometer. READ THE TEMPERATURES THAT THIS THERMOMETER MEASURES. CAN YOU MEASURE THE TEMPERATURE OF THIS ROOM WITH THIS THERMOMETER? WHY?
- (6) Have the pupil(s) measure the temperature of the oven of any available stove. Indicate that the pupil(s) should attempt to determine whether or not the temperature selector for the oven is working properly.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

Task Analysis	
Process	Cognition
In: visual verbal	conceptual
Out: vocal verbal	recognition

(Weather and climate)

(7) Have one student measure the temperature outside the room in direct sunlight while another student measures the temperature in the shade. Have them compare their results. Have the whole class discuss the discrepancy.

(8) Repeat content-development activity (7) inside the room.

Reinforcement Activities:

(1) Discuss temperatures as they are announced on the radio or read by a student from an exteriorly-mounted thermometer.

(2) On especially cold (in winter) or hot (in summer) days, discuss the temperature.

(3) Discuss temperatures related to cooking.

(4) Discuss temperature changes on a day when the temperature changes rapidly and/or markedly.

TEACHER TIPS	
Teaching Resources	Teaching Strategies

SAFETY

Ability and Assessment:

2. To predict that sharp-edged and pointed objects can cause wounds and bleeding, and to demonstrate proper handling of broken objects.

Provide a flat box containing several large and small pieces of broken glass. Have a broom, dust pan, and other common cleaning items available.

SUPPOSE YOU ACCIDENTALLY DROPPED A BOTTLE AND IT MADE A MESS LIKE THIS ON THE FLOOR. WHAT COULD HAPPEN IF YOU LEFT THE PIECES ON THE FLOOR? WHAT COULD HAPPEN IF YOU TRIED TO PICK UP THE PIECES WITH YOUR FINGERS? SHOW ME HOW YOU COULD CLEAN UP THE PIECES SAFELY.

Content-Development Activities:

- (1) LISTEN, WHILE I TELL YOU A SHORT STORY ABOUT JOHNNY. JOHNNY WAS DRINKING A PEPSI FROM A GLASS BOTTLE. HE DROPPED THE BOTTLE ON THE TILE FLOOR, AND IT BROKE INTO SEVERAL PIECES. WHAT MIGHT HAPPEN IF JOHNNY PICKED UP THE BROKEN PIECES? (Possible responses: he would cut himself; he would bleed.) HOW COULD JOHNNY CLEAN UP THE GLASS WITHOUT TOUCHING IT? (Elicit: sweep it into a dust pan and put it in a safe place.)

Task Analysis

Process

In: auditory verbal  
Out: vocal verbal

Cognition

conceptual  
recall

- (2) Role-play the story in (1) above (use pieces of paper for glass). Extend the role-playing activity to include Johnny cutting himself, with another child playing the role of medic or doctor to stop the bleeding. (Refer to Basic First Aid, Book 1, The American Red Cross.)
- (3) SOMETIMES YOU CAN'T SEE GLASS. PEOPLE SOMETIMES RUN INTO GLASS DOORS AND WINDOWS. WHAT WOULD HAPPEN IF YOU DIDN'T SEE THE GLASS IN A DOOR, AND RAN INTO IT? (Expected responses: you would get cut badly; you would bleed; etc.) WHAT COULD WE DO TO MAKE THE GLASS DOOR SAFE? (Expected responses: put a curtain in front of it; put a strip of tape on it.)
- (4) WATCH ME WHILE I OPEN THIS CAN WITH A MANUAL CAN OPENER. (Take the lid off and show the sharp edges to the class.) WHAT COULD HAPPEN IF I'M NOT CAREFUL WITH THIS LID? WHAT SHOULD I DO WITH IT?

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 9	p81
p18; 9	p81

(Safety)

**Reinforcement Activities:**

- (1) Role-play several situations similar to the content-development activities.
- (2) Use situations that occur in the classroom or on the playground to demonstrate proper handling of sharp-edged, pointed, and broken objects.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p81

(Safety)

Ability and Assessment:

6. To predict that overexposure to sunshine can cause sunburn and perhaps illness.

It would be best to conduct this assessment on a warm or hot sunny day.

IT IS NICE OUTDOORS TODAY. IT WOULD BE FUN TO PLAY (SIT, LIE) IN THE SUNSHINE. WHAT HARM MIGHT THERE BE IF YOU PLAYED (SAT, LAY) IN THE SUNSHINE FOR \_\_\_\_\_ (specify some lengthy period of time e.g., three hours, as appropriate for the occasion and the student)? Elicit responses concerning sunburn and possible resulting illness. WHAT WOULD IT BE LIKE TO BE SUNBURNED?

Task Analysis

Process

Cognition

In: auditory verbal  
Out: vocal verbal

conceptual  
recall

Content-Development Activities:

- (1) If possible, tell a story about someone in the class who has had a bad sunburn. Example: Last Saturday Mary Anne went fishing with her father. It was a hot, sunshiny day. Mary Anne and her father sat in the sun all day. She did not wear a hat.  
  
WHAT WOULD IT BE LIKE TO BE SUNBURNED? (Elicit: My skin would be red; I would feel bad; I would get sick; etc.)
- (2) For older students, use questions similar to the following:  
  
WHAT COULD BE DONE IF SOMEONE HAD A BAD SUNBURN? (Elicit: Lie down, and drink salt water; cool him off with cool water; and take him to the hospital.)  
  
For more complete information refer to Basic First Aid, Book IV, The American National Red Cross.
- (3) Role-play a situation depicting a person who has had a bad sunburn. Other roles might include a medic, a doctor, or an older student administering first-aid treatment.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 9	p81
p18; 9	p81

(Safety)

Reinforcement Activities:

- (1) Make a bulletin board display of pictures of people who have been sunburned.
- (2) Have pupils tell personal experiences relating to sunburn.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40



(Safety)

Ability and Assessment:

13. To demonstrate proficiency in the application of safety measures in the classroom, on the playground, as a pedestrian, etc.

Observe the student in many situations for evidences of safety-oriented behavior. Reminder: this will need to be done over an extended period of time. You may wish to keep a record of the pupil's safety-oriented behavior.

Content-Development Activities:

- (1) YOU TELL ME SOME GAMES THAT WE CAN PLAY ON OUR PLAYGROUND. (List these games on the board or on an experience chart.)
- (2) Use the above list of games.

TELL ME THOSE GAMES THAT CAN BE PLAYED WHEN ONLY A FEW GROUPS ARE ON THE PLAYGROUND; WHEN THERE ARE MANY GROUPS ON THE PLAYGROUND. (Make two separate lists on the board or on an experience chart.)

- (3) Discuss the following safety hazards which may be found on a playground. (Use hazards that apply to your specific playground.)

--walls and fences  
--drains and steps  
--railings and barricades  
--trees, posts, and pillars  
  
--dogs  
--playground apparatus  
--debris on playground

- (4) Supervise play for several days to determine if pupils are applying safety precautions. E.g., a circle game like "Dodge Ball" may be dangerous for players who sit down while the game is played around them. Discuss these precautions as incidents occur on the playground.

Note: Use a similar format for other safety measures (classroom and pedestrian).

Reinforcement Activities:

- (1) Make a paper-strip "movie reel" of pupils at play, including captions on safety.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 9	p81
	p40

(Safety)

(2) If a film on playground safety is available, view the entire film with the pupils. Discuss how the safety measures in the film apply to your playground.

Task Analysis	
Process	Cognition
In: visual nonverbal auditory verbal	conceptual recall
Out: vocal verbal	

TEACHER TIPS	
Teaching Resources	Teaching Strategies

ENVIRONMENTAbility and Assessment:

5. To identify a source and describe the dangers of solid-waste pollution.

Question the pupil about solid wastes or litter, adapting the questions to your local situation. Questions such as the following may apply.

TELL ME ABOUT THE LITTER YOU SAW ON YOUR WAY TO SCHOOL TODAY. WHERE DID THE LITTER COME FROM? WHAT THINGS ARE LYING AROUND ON THE SCHOOLGROUND (IN THE SCHOOL HALLWAYS, etc.) THAT SHOULD NOT BE THERE? HOW DID THOSE THINGS GET THERE? WHAT IS THAT BIG PILE OF STUFF AT THE EDGE OF THE CITY? HOW DID IT GET THERE? Be sure to elicit responses concerning himself as a possible source of litter. WHAT ARE THE DANGERS IN HAVING LITTER IN THE STREETS (IN THE PARKS, IN EMPTY SPACES, etc.)? (Destroys beauty, may be sharp objects, may carry germs, etc.)

Alternatively, have the student draw a picture of a park (the schoolyard, a sidewalk, a street, etc.). Then have him draw a picture of the same area after it had been littered. Then ask questions such as the following.

HOW WOULD LITTER GET IN THE PARK? WHO PUTS IN THERE? WHY DON'T WE LIKE TO HAVE LITTER AROUND?

Content-Development Activities:

- (1) Use a large table to display the litter collections.

LOOK AROUND OUR CLASSROOM AND FIND THE LITTER. PICK UP THE LITTER AND PUT IT ON THIS TABLE.

Task Analysis	
Process	Cognition
In: visual nonverbal	perceptual
Out: motor nonverbal	awareness

- (2) WHO CAN NAME SOME OF THE THINGS THAT HAVE LITTERED OUR ROOM?

- (3) WHEN YOU GO HOME TODAY, LOOK FOR PLACES THAT HAVE A LOT OF LITTER. COME TO SCHOOL TOMORROW AND TELL US ABOUT THE PLACES.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p19; 19	p81

(Environment)

(4) If a child reports a place that the class can clean up, then plan and take a field trip to that place. Take a Polaroid photograph of the area before the clean-up, and another Polaroid photograph after the clean-up.

LET'S PICK UP ALL THE LITTER IN THIS AREA AND PUT IT IN THESE GARBAGE BAGS. DOES IT LOOK ANY DIFFERENT NOW FROM THE WAY IT LOOKED WHEN WE GOT HERE?

(5) (In the classroom):

HERE IS THE PICTURE OF THE PLACE WE CLEANED UP BEFORE WE STARTED. WHERE DO YOU THINK THE LITTER CAME FROM? WHAT DID WE DO WITH THE LITTER? WHERE DO YOU THINK THE LITTER IS NOW?

(6) Take a class trip to the local solid-waste disposal facility.

(7) With the children, develop a chart titled: "Where Our Trash and Garbage Goes." The chart will use pictures to show what happens to a bag of litter from the garbage can through the final disposal step. Be sure the chart shows the outcome for both paper and metal waste.

(8) WHAT DO YOU THINK WOULD HAPPEN IF THE GARBAGE DISPOSAL PLANT STOPPED WORKING?

(9) Use a transparency which is a facsimile of the chart in (7) which will allow the child to indicate the place of the garbage in the process.

HERE IS A BAG OF GARBAGE. SHOW ME WHAT HAPPENS TO IT.

(The child is to trace on the transparency the disposal route.)

Reinforcement Activities:

(1) Set aside a part of each day for an anti-litter report time: TELL US WHAT YOU DID TODAY TO HELP GET RID OF LITTER.

(2) Give each child a map of a small part of a familiar area; i.e., the school grounds, the local shopping area, the base housing areas, etc.: SHOW ON YOUR MAP WHERE THE CANS ARE THAT WE CAN PUT LITTER IN.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40

(Environment)

Ability and Assessment:

7. To identify some common air pollutants and to infer some of the effects of air pollution on the environment.

NAME SOME THINGS THAT MAKE OUR AIR DIRTY. (Automobile exhaust, chimney smoke, soot, etc.) TELL ME SOME THINGS THAT MIGHT HAPPEN TO YOU WHEN THE AIR GETS TOO DIRTY (e.g., coughing, shortness of breath, dirty clothes, eyes hurting, etc.).

Content-Development Activities: \*

- (1) Define pollution; air pollution. Assist the pupils to construct a piece of cardboard approximately 12 inches square, covered on one side with masking tape---sticky side up. A clear plastic film can be used to protect the sticky tape until you are ready to collect particles.

NOW WE ARE GOING TO PLACE THIS TAPEBOARD ON AN OUTSIDE WINDOWSILL FACING THE GENERAL DIRECTION OF THE WIND. (Leave the tapeboard in place for twenty-four hours.) Have pupils observe what has happened and identify the particles on the tapeboard.

- (2) Have pupils make tapeboards to place inside their homes and bring back to school in a week. Permit each pupil to show and tell something about his experiment.

- (3) Burn a newspaper or cardboard box outdoors when there is a slight breeze blowing. Place tapeboards about 4 to 6 feet upwind and downwind of the fire. Have pupils observe and discuss the difference in the amounts of particular matter collected on each (smoke or its absence).

- (4) Develop experience charts on differences in the amounts of particular matter collected on the tapeboards.

WHY DO YOU THINK THIS SMOKE POLLUTES THE AIR? WHAT ARE SOME OTHER SOURCES OF SMOKE THAT POLLUTE THE AIR?

\*Adapted from "Investigate the Environment in the City," National Science Teachers Association, 1201 16th St., Washington, D.C. 20036, December 1972, 50 cents.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18: 12 p19: 19	p40 p46
	p40

(Environment)

- (5) There are a variety of more complicated activities and experiments that can be performed with older students. E.g., filtering air through filter paper or cotton to see staining occur; it is also possible to filter air being exhausted from an automobile and some other sources. (Be sure to caution the student about the ever-present danger of carbon monoxide from these sources.)

Reinforcement Activities:

- (1) As situations arise in the school, classroom, and community, discuss the implications of polluting the air.
- (2) Have pupils draw pictures of various objects that pollute the air.
- (3) Role-play various ways of preventing air pollution.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p81

(Environment)

Ability and Assessment:

9. To identify some common water pollutants and some of the effects of water pollution on the environment.  
IS THE WATER IN THE RIVER (LAKE, etc.) SAFE TO DRINK? WHAT CAN YOU SEE IN (NEAR) THE WATER (RIVER, LAKE, etc.) THAT MAKES YOU THINK THAT THE WATER IS NOT SAFE TO DRINK (IS NOT CLEAN, IS POLLUTED)? ARE THERE HARMFUL THINGS IN THE WATER THAT WE CANNOT SEE? WHAT ARE THOSE THINGS? WHERE DO ALL OF THE POLLUTANTS (BAD THINGS, HARMFUL THINGS) IN THE WATER COME FROM? WHO PUTS THEM IN THE RIVER (LAKE, etc.)? WHAT ARE SOME DANGERS ABOUT HAVING POLLUTED WATER?

Content-Development Activities:

- (1) Find a clear place outside and divide the class into groups of three or four pupils.

LOOK AROUND YOU AND REMEMBER THE THINGS YOU SEE. (Encourage them to notice such things as: the bird in the tree, the worm in the ground, the bare spot in the ground, the ant, a cloud.)

Task Analysis

Process                      Cognition

In: visual nonverbal              perceptual  
Out: vocal verbal                  recall

- (2) Reassemble and have the pupils tell you what they saw and list these things on an experience chart.

NAME SOME OF THE THINGS YOU SAW THAT YOU LIKED. NAME SOME OF THE THINGS YOU SAW THAT YOU DIDN'T LIKE. CAN WE CHANGE THESE THINGS? WHO CAN CHANGE THEM?

- (3) Define or demonstrate what is meant by pollution; water pollution. Provide the following materials:

- (a) Fresh tap water.
- (b) Tap water after settling for 24 hours.
- (c) River or ditch water (do not taste water without boiling).
- (d) Rain water.
- (e) Distilled water.
- (f) Dilute vinegar.

NOW, WE ARE GOING TO SEE, SMELL, AND TASTE EACH SAMPLE OF WATER. TELL ME HOW IT TASTES (SMELLS, LOOKS).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p18; 12	
	p40

(Environment)

- (4) Make an experience chart which includes the samples in activity (3).

Example:

SAMPLE  
(answer "yes" or "no")

Does it look good?  
Does it smell good?  
Does it taste good?

a	b	c	d	e	f

WHICH SAMPLE LOOKS, SMELLS, AND TASTES BEST? WHICH SAMPLE IS BEST FOR DRINKING? WHICH IS WORST FOR DRINKING? WHY?

- (5) Present one quart of soapy water and one quart of tap water.

WHAT DOES THIS (soapy water) LOOK LIKE? WHAT DOES IT TASTE LIKE (etc.)? WHAT DOES THIS TAP WATER LOOK (TASTE, SMELL) LIKE? WE WASH DISHES IN SOAPY WATER. CAN WE DRINK THIS DISHWATER? WHY?

- (6) NOW, WE ARE GOING TO SEE WHAT HAPPENS TO POLLUTED WATER TO MAKE IT SAFER TO DRINK.

Use the samples of soapy water and tap water as in activity (5). Present filter paper on paper towels, funnel, aerator from a fish aquarium, and an empty container for each sample. (Permit pupils to help with the experiment.)

Pour water into separate containers through the filter shaped into the funnel. Put the aerator tube into this filtered water for one hour; for 24 hours. Note any change in appearance or odor. Discuss after each step. (Note effects of settling, filtration, and aeration.)

HOW DOES THE WATER LOOK NOW? HOW DOES IT SMELL? ARE BOTH SAMPLES NOW SAFE TO DRINK?

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	D40



## (Environment)

(7) Present samples of river water, ditch water, etc. Treat as in activity (6). Discuss reasons why rivers, lakes, and other streams become polluted.

WHAT CAN WE DO TO PREVENT (STOP) RIVERS, LAKES (etc.), FROM BECOMING POLLUTED?

Note: The water pollution ideas can be developed further for older students, especially with more sophisticated measuring tools and techniques.

Reinforcement Activities:

- (1) Have pupils draw pictures of things that pollute water.
- (2) Role-play situations showing causes of water pollution.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p81

EARTH AND SPACEAbility and Assessment:

3. To identify the major sources of water on the earth (oceans, lakes, streams).

WHERE DID THIS WATER COME FROM? WHERE DID IT COME FROM BEFORE THAT? (Elicit responses to follow water back to streams, lakes, oceans, and finally to the water cycle [see ability #9 in Weather and Climate subsection].)

Content-Development Activities:

- (1) Take a field trip to the water treatment plant that serves the base community. Be sure the tour guide shows and explains the source of water for the water treatment facility.
- (2) Procure pictures and flow charts of the water treatment facility visited in content-development activity (1). Discuss the picture and the flow chart emphasizing the source of water that the facility treats before sending it into the base community.
- (3) Look at a map of Germany (or your locale, if other than Germany) that shows lakes, rivers, communities, and your indications of industrial versus agricultural areas. Discuss the reasons that the largest communities are near sources of large quantities of water. Also discuss the reasons that industries are often located near sources of large quantities of water.
- (4) Look at a globe (map of the earth) and name all of the large bodies of water depicted, including rivers of significant size.
- (5) Name all of the large bodies of water depicted on the globe in the general area of Germany. Have each student name (or point to) a large body of water near his home in "the States."
- (6) IF WE ARE CONSTANTLY USING THE WATER FROM OCEANS, LAKES, AND RIVERS, WHY DON'T THESE BODIES OF WATER GET SMALLER AND SMALLER?

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p17; 4h p18; 16b	p40

Task Analysis	
Process	Cognition
In: auditory verbal	conceptual
Out: vocal verbal	recall

(Earth and space)

- (7) RIVERS APPEAR TO KEEP RUNNING ON AND ON. WHY DOESN'T THE RIVER EVER EMPTY? (Provide a pail full of water, and go to the playground. Tell one student to empty the pail slowly on a sloped area.) YOU HAVE MADE A SMALL RIVER, BUT AS SOON AS ALL OF THE WATER HAS GONE DOWN THE HILL THERE IS NO LONGER A RIVER. WHY DOESN'T THE RHINE (or whatever river passes through or near your area) EMPTY AND STOP BEING A RIVER?
- (8) During a heavy rain or snow melt, observe the formation of riverlets on hillsides. Point out that many small riverlets converge to make larger riverlets, and these eventually flow into a river, pond, lake, or the ocean.
- (9) Discuss where rain (precipitation in general) originates. (See ability #9, Weather and Climate subsection.)
- (10) Review concepts of cloud formation and precipitation (evaporation, condensation, and precipitation).
- (11) Review concepts of the water cycle (see ability #9, Weather and Climate subsection).

Reinforcement Activities:

- (1) Have pupils construct a water cycle chart for the Rhine River (or other relevant body of water) beginning with rain and snow in the Alps and following through evaporation from the ocean. Remind your pupils that evaporation, condensation, and precipitation occur all along the way.
- (2) Go outside immediately after a heavy rain and observe the run-off and where it goes. Discuss the complete water precipitation cycle depicted in this run-off.
- (3) Go outside during a warm early spring day when melting is resulting in run-off. Discuss the complete water cycle depicted in melted snow run-off.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40
	p31
	p31

(Earth and space)Ability and Assessment:

11. To explain what causes the seasons and to explain some changes that occur with seasonal change (temperature, length of daylight, weather).

The younger student could be expected to describe some changes that occur with seasonal changes. An older student could be expected to explain causes of the seasons. Use the apparatus described in the assessment for ability #10. Ask the student to move the earth in its revolution around the sun while rotating and tilting the earth for the spring, summer, fall, and winter seasons.

Content-Development Activities:

- (1) Be sure the student understands the concepts of day and night (see ability #10, above).
- (2) Examine a globe which depicts the natural tilt of the earth. Discuss the fact that the world is tilted from a straight-up-and-down line relative to the sun.
- (3) Use the globe in activity (2) above and a spotlight-type lamp in a completely darkened classroom. Three students are needed for this activity: One will turn the lamp (sun). One student will carry the globe (earth) in a path around the sun. One student will rotate the globe (earth) while it is going around the sun. The lamp must be turned so that the sun is always shining on the earth. The size of the circle around the sun should be such that only one-half of the earth is illuminated at any given time. The earth should make its revolution slowly around the sun. The earth should be rotating rapidly enough to get approximately 365 complete rotations (days) in one revolution around the sun.
- (4) Repeat activity (3) above, but this time use the flashlight and tell the students that the light rays from the flashlight act like the sun's rays. Also tell them to watch for when the flashlight makes the largest spot on the earth, and when it makes the smallest spot.
- (5) This experiment must be done on a bright sunny day. Present all of the children with magnifying glasses (the dime-store type will do). Also give each child some bits of paper on an unburnable surface. Tell half of the group to make a spot of sunlight, as big as a hand, fall right on their paper. Tell the other half of the students to make as small a dot of sunlight as they can fall right on their bits of paper. Provide assistance as necessary to get a tiny dot of sunlight falling on the paper. The paper bits being subjected to the concentrated light will begin to smoke and/or burn after a few minutes.

TEACHER TIPS	
Teaching Resources	Teaching Strategies
p16; 3 p17; 4g p19; 22	

## (Earth and space)

WHY DID (JOHNNY'S, SUZIE'S, etc.) PAPER BEGIN TO TURN WHILE (JACKY'S, DONNA'S, etc.) DID NOT? (Desired response: because the sunlight wasn't spread around as much/hit (Johnny's, Suzie's, etc.) paper more directly than it did (Jacky's, Donna's, etc.). WHY DID WE USE THE MAGNIFYING GLASSES? (Desired response: to concentrate the light even more.)

## Task Analysis

ProcessCognition

In: visual nonverbal

conceptual

Out: vocal verbal

recognition

- (6) Repeat content-development activity (4). Tell the children to watch the flashlight spot on the globe and tell when summer and winter are represented. Have the pupils or other pupils walk through and do the necessary turning to portray the rotations and revolution of the earth during one year. When the children involved are depicting winter, put a sheet of paper on the floor with the word "winter" written upon it. Do the same for summer, then fill in fall and spring in the appropriate places. Finish the activity by dividing the entire circle into four equal portions: one for winter, one for spring, one for summer, and one for fall.
- (7) Discuss temperature differences in each of the four seasons and relate this to the temperature differences depicted in content-development activity (5) above.
- (8) Discuss the length of daylight for typical days of each of the respective seasons. Repeat content-development activity (3), then continue discussion.

Reinforcement Activities:

- (1) Record the number of hours of daylight for a fall day, a winter day, a spring day, and a summer day from a weather almanac. Discuss the similarities and the differences, and the reasons for the similarities and differences.
- (2) Record the average temperature for spring, summer, fall, and winter. Discuss the similarities and differences, and the reason for the observed similarities and differences.
- (3) As necessary, repeat content-development activities (3), (4), (5), and (6).

TEACHER TIPS	
Teaching Resources	Teaching Strategies
	p40